Office Management
and AMERICAN BUSINESS

The Magazine of Administration and Systems

Trends and Forecast Issue

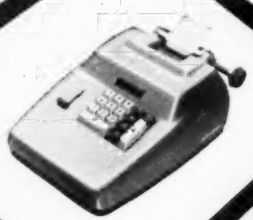
January **1961**

Significant Events of the Year • *Forecast of New Developments*

Extensive Reference Section • FULL CONTENTS, PAGE 5

Another Achievement from Monroe

Compacted into a dynamic design not much larger than your telephone is Monroe's latest conversation-piece among business-machine engineers. Astonishing speed distinguishes this 10-key Adding Machine — one of the famous **Monroe Series E** with the "Velvet Touch". Cycling at 250 milliseconds, it will outpace and outproduce any machine of its kind. With its repeat key directly over the plus bar, it's a one-handed, sure-handed multiplier, too — even for the beginner. And its trouble-free durability rarely if ever needs the Monroe nationwide service organization that backs its guarantee. The Series E genuinely means ease, efficiency, economy — its surprisingly low price will save you up to one-third when you buy.



See the MAN from MONROE

for CALCULATING ADDING • ACCOUNTING DATA PROCESSING MACHINES

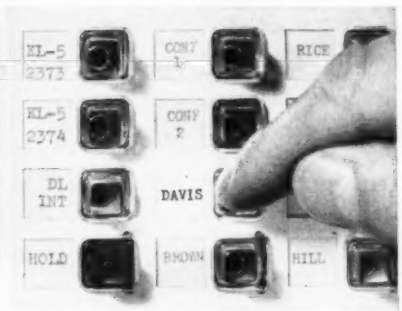
A DIVISION OF LITTON INDUSTRIES

Monroe Calculating Machine Company, Inc. Sales and service in principal cities everywhere. General offices, Orange, N. J.

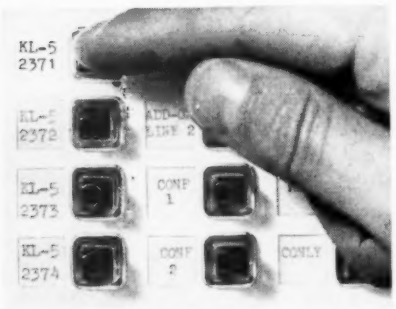
(Circle No. 32 on Reader Inquiry Card)

Only the Bell System puts all these intercom features right at your fingertips!

This is the versatile Call Director...

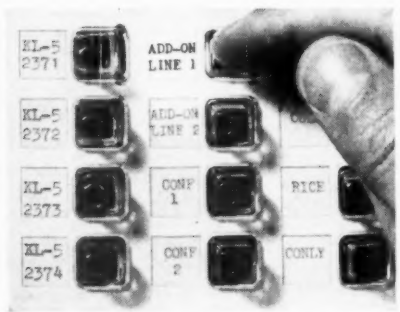


...the latest in pushbutton communications

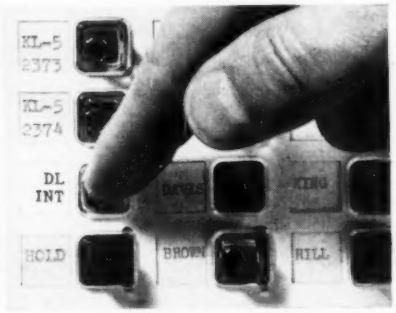


...serves your outside and inside needs

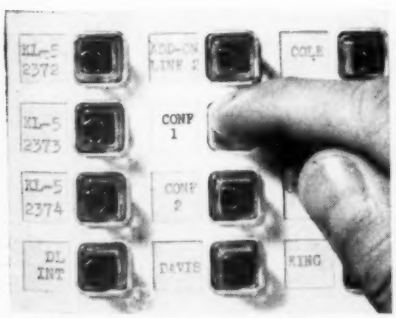
...holds a call while you make others



...adds inside stations to outside calls



...gives you maximum intercom flexibility



...sets up six-way telephone conferences.

Ask our Communications Consultant about it!

You're looking at the Call Director—a *versatile, low-cost* communications system, in one compact unit, that will meet all your external *and* internal communications needs.

We said *versatile.* You reach your key people simply by pushing a button or by dialing just a single digit. You can hold calls while making others, add an inside extension to an outside call, set up six-way telephone conferences. A flashing light lets you know if someone tries to reach you while you're talking. The equipment automatically connects you to "busy" inside phones when they are free. It gives you complete intercom *privacy.*

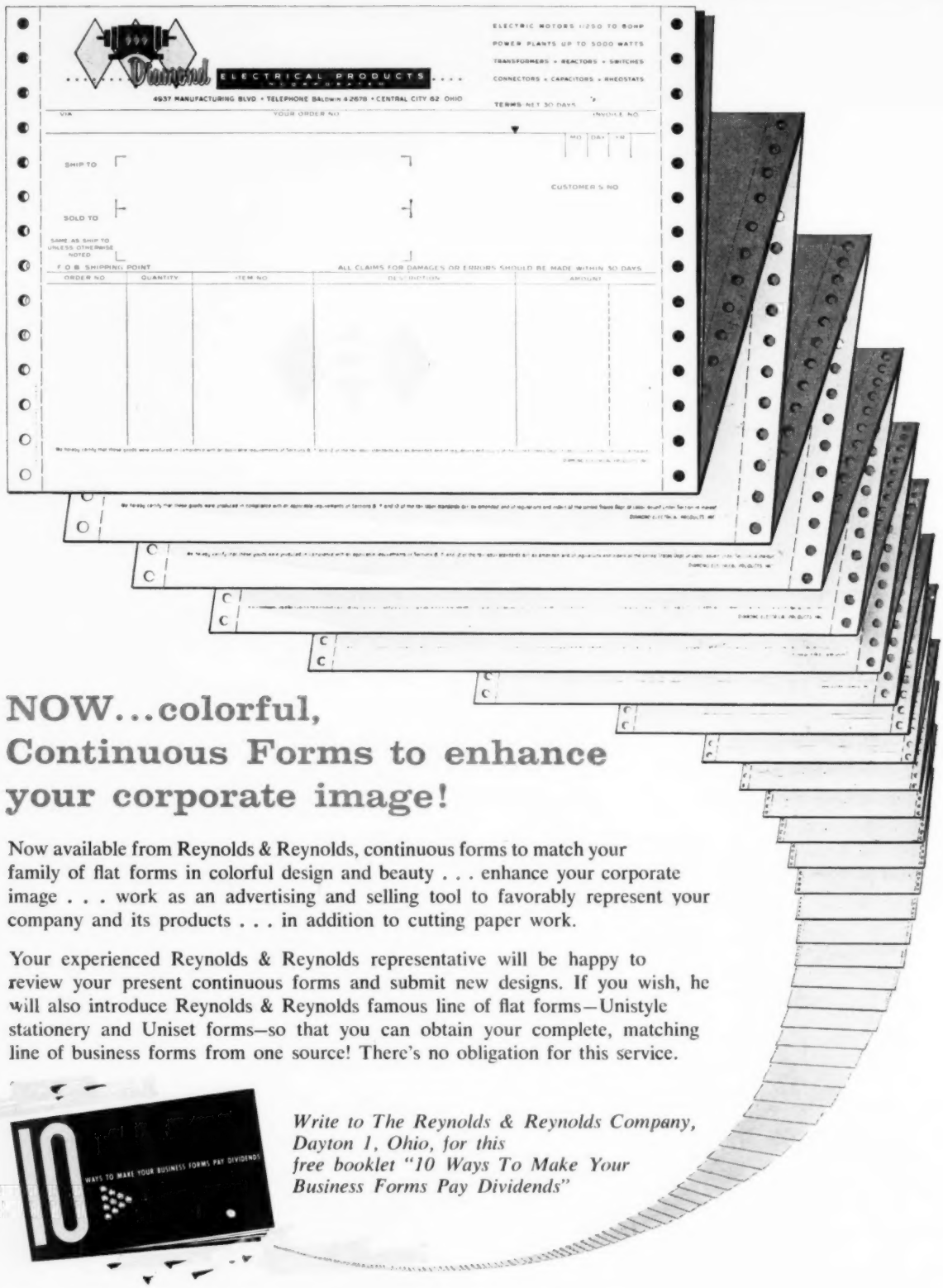
These are *flexible* features. They can be changed as your needs change. You can have 18-button or 30-button models, in a choice of colors.

We said *low-cost.* You don't invest a penny of your own capital. You get expert maintenance—at no extra cost. And this *one* compact installation meets *all* your needs. No other expense. No excess equipment to clutter desks.

Get complete details from our Communications Consultant. He knows business communications inside-out. His experience, based on the Bell System's 80 years in this field, is yours for the asking. Just call your Bell Telephone Business Office. No obligation, of course.

BELL TELEPHONE SYSTEM

223082



NOW...colorful, Continuous Forms to enhance your corporate image!

Now available from Reynolds & Reynolds, continuous forms to match your family of flat forms in colorful design and beauty . . . enhance your corporate image . . . work as an advertising and selling tool to favorably represent your company and its products . . . in addition to cutting paper work.

Your experienced Reynolds & Reynolds representative will be happy to review your present continuous forms and submit new designs. If you wish, he will also introduce Reynolds & Reynolds famous line of flat forms—Unistyle stationery and Uniset forms—so that you can obtain your complete, matching line of business forms from one source! There's no obligation for this service.

Write to The Reynolds & Reynolds Company, Dayton 1, Ohio, for this free booklet "10 Ways To Make Your Business Forms Pay Dividends"

The Reynolds & Reynolds Company

DAYTON, OHIO • CELINA, OHIO • DALLAS, TEXAS • LOS ANGELES, CALIFORNIA

BUSINESS FORMS AND SYSTEMS SINCE 1866

Also manufacturers of Post-Rite Pegboard Accounting Systems

(Circle No. 43 on Reader Inquiry Card)

Office Management
and AMERICAN BUSINESS

Office Management established 1940; *American Business* established 1930. This publication incorporates *System* magazine, founded in 1900, and *Business Equipment Topics*, founded in 1905.

Published Monthly by
GEYER-McALLISTER PUBLICATIONS
Andrew Geyer-McAllister, Inc., Est. 1877
212 Fifth Ave., New York 10, N. Y.
MUrray Hill 9-4411

PUBLISHER
Donald McAllister

EDITOR
Robert M. Smith

MANAGING EDITOR
John Allan Rhea

ASSOCIATE EDITORS
John M. Sine
Edith Conner
William Kelly

RESEARCH ASSOCIATE
Mary D. Lyons

ADVERTISING DIRECTOR
John M. Smythe

ADVERTISING and PUBLICATION MANAGER
James E. Neary, Jr.

PROMOTION DIRECTOR
George A. Tice

MIDWEST MANAGER
Arthur Hutchison

ADVERTISING STAFF
Fred Steinhilber
Charles G. Kretschmar
David Hanley
Robert J. Smythe

PRODUCTION MANAGER
James V. Quirk

ASSISTANT PRODUCTION MANAGER
Milton Sharon

ART DIRECTOR
Joseph Hochfeld

CIRCULATION MANAGER
M. T. Weeks

MEMBER:
Audit Bureau of Circulations
Associated Business Publications

Chairman of the Board: M. A. Geyer; *President*: Donald McAllister; *Senior Vice President*: John M. Smythe; *Vice-Presidents*: Arthur P. Hibbard, James E. Neary, Jr., Fred G. Steinhilber, Robert M. Smith; *Controller*: Arthur M. Spence. BRANCH OFFICES: BOSTON (16): 419 Boylston St. (Rm. 701), Kenmore 6-7333, Charles G. Kretschmar; CHICAGO (1): 228 N. La Salle St., State 2-2911, Arthur Hutchison, David Hanley, Robert J. Smythe; LOS ANGELES (5): 740 S. Western Ave., Dunkirk 7-6149, *Chris Dunkle & Associates, J. R. Iander (Editorial Representative)*; SAN FRANCISCO (11): 420 Market St., Sutter 1-8854, *Chris Dunkle & Associates*.

Subscription: $4 a year in United States and in possessions, Canada, Mexico and Cuba. Other countries, $9 a year. Single copies 45c; Trends and Forecast Issue $1. Copyright 1961 by Andrew Geyer-McAllister, Inc.; all rights reserved. Also publisher of Geyer's Dealer Topics, Who Makes It and Where, and The Gift and Art Buyer. Please give 60 days' notification of any change of your address. Re-entered as second class matter June 29, 1953, at the Post Office at New York, N. Y., under Act of March 3, 1879.

January 1961
Volume XXII, Number 1

TRENDS AND FORECAST ISSUE

AUTOMATION IN THE OFFICE 7

Automation revolution will affect every phase of U.S. economy 8
By Robert M. Smith

As company integration moves forward, sales, transportation, even production, will all be tied together, and the office will run every business activity 12
By Ralph E. Weindling

PERSONNEL 17

Technical advances promise changes in traditional company personnel structure 18
By Edith Conner

Let's gear management development to corporate realities . . 23
By John Collins

SYSTEMS 27

Today's plans will shape the future, but past overspecialization in narrow areas has run counter to technological advances 28
By Robert Shiff and Alan Negus

Good systems design for the small office equals lower operating costs 33
By Gerald Murphy

OFFICE DESIGN 39

Decade of progress in office planning 41
By John Allan Rhea

Office expansion demands sound planning; lessons learned in New York to utilize office space now apply everywhere 46
By J. Gordon Carr

The office must reflect the company; yet, too many offices project unclear or conflicting images 52
By J. Gordon Lippincott and Walter P. Margulies

TOOLS OF THE OFFICE 57
By Mary D. Lyons

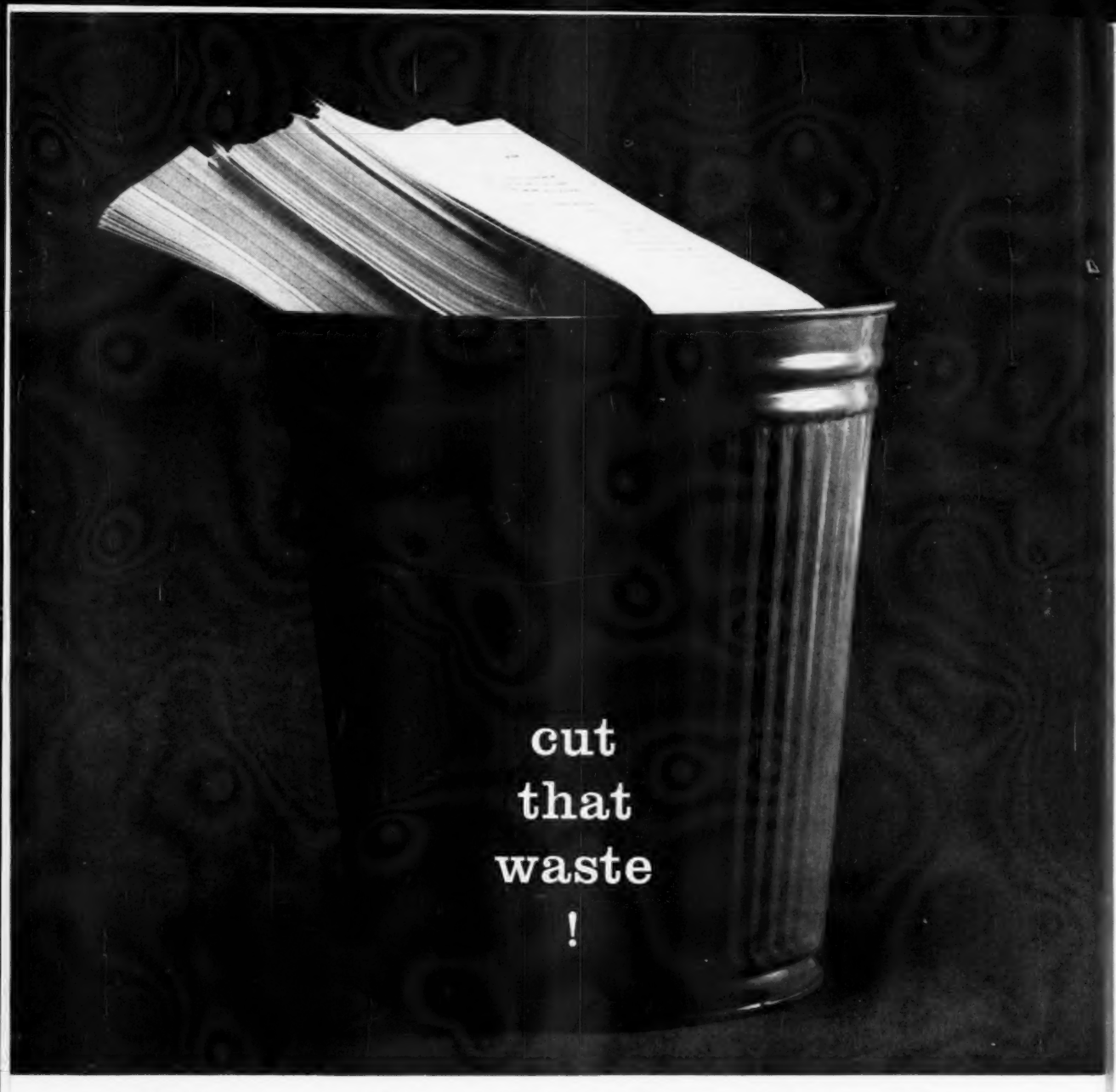
CATALOGS, BOOKLETS, AND BROCHURES 127

ASSOCIATIONS OF INTEREST TO OFFICE ADMINISTRATORS 135

PREVIEW OF EVENTS DURING 1961 136

SEMI-ANNUAL INDEX OF FEATURES 137

COMPANY ADMINISTRATOR NEXT? (Editorial) . . 140



...with new Stan-Pak Run-Rite Papers

When too much of your duplicating run ends up in the wastebasket, it's time to ask questions. Often of the *paper*. Is it unevenly trimmed? Too moist or too dry? Does the caliper vary?

It's not always easy to tell. But now, with new Stan-Pak* Run-Rite* Papers, you can reduce your paper waste substantially.

Trouble-Free Running

Take *flatness*. We laboratory-test all our papers right on the duplicating machines they're made for. Stan-Pak Run-Rite Papers come to you flat. Lie flat in the machine. And *feed* flat.

But really trouble-free running calls for many *more* qualities. Controlled moisture to avoid static conditions and insure good printability. Accurate trim and finish to prevent feeding jams. Even caliper, uniform weight and careful surface sizing to give you sharp, clean ink impressions.

You get them *all* in Stan-Pak Run-Rite Papers.

525 Grades, Sizes and Weights

This brand new line answers just about every office need in printing and duplicating papers. Under the Stan-Pak Run-Rite name you'll find the grade, color and weight you want—at a sensible range of prices to suit your budget.

Next time you order paper, try the brand that's made to *run right*. Through the duplicating machine. On the press. In the typewriter.

We're confident you'll specify it every time.

STANDARD PACKAGING CORPORATION, NEW YORK 17

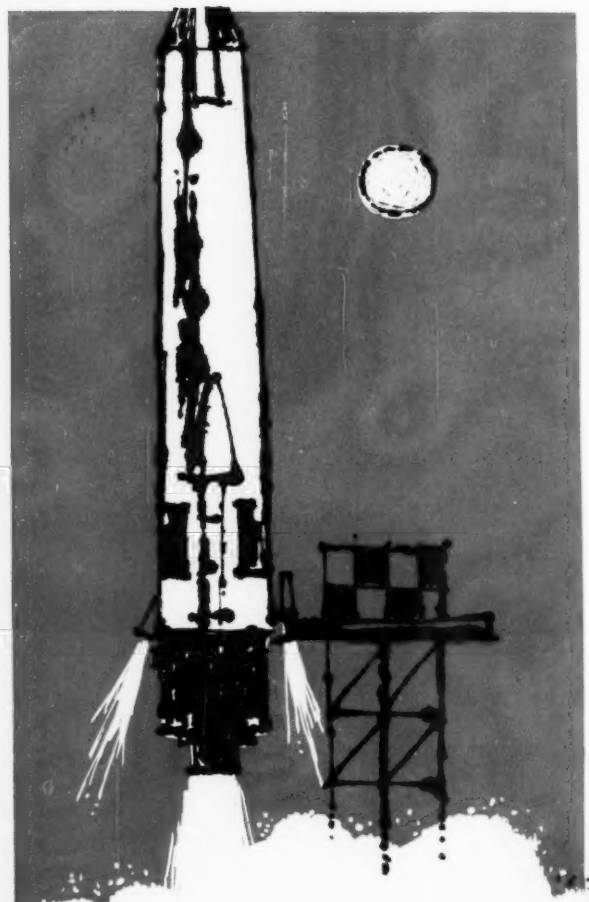
* T.M.

(Circle No. 18 on Reader Inquiry Card)

AUTOMATION
IN THE OFFICE

The acceptance—and the intelligent application—of automation, both in the office and on the production line, has continued at an ever-growing rate during this past year. The pace promises to accelerate even more in the years ahead. But, at the same time, some of the potentials—and some of the dangers—of this overwhelming new force are just beginning to be realized. This section deals with the developments, the future, and the possible effects, of automation in the 1960's.

AUTOMATION "REVOLUTION" WILL AFFECVE



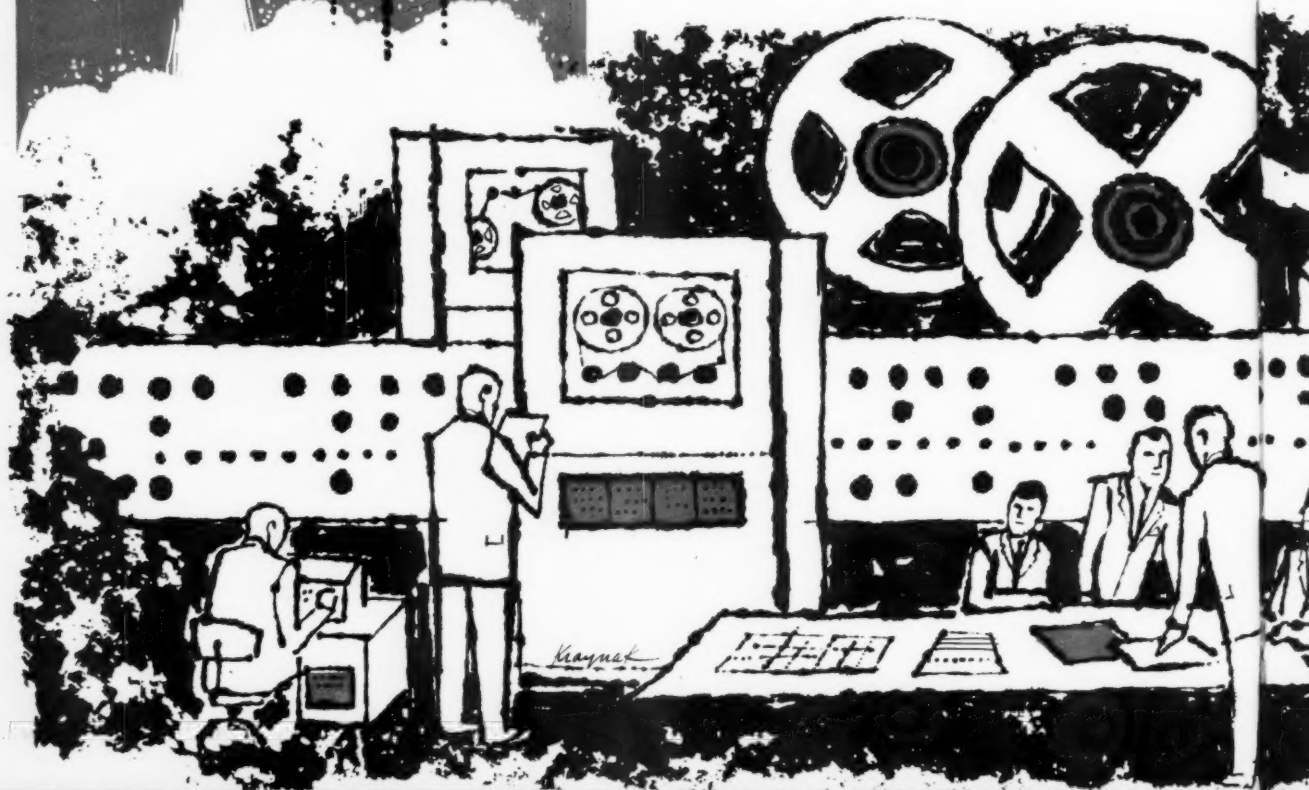
Serious effects foreseen in four main areas: clerical employment, company power structure, executive selection, educational patterns

By ROBERT M. SMITH

IT'S GENERALLY agreed in the industry that electronic data processing will hit a billion dollars in volume this year. We're making our plans in the expectation that volume will reach five billion dollars by 1965."

The speaker was Alfred M. Wilson, executive vice president and chief financial officer, Minneapolis Honeywell Regulator Company. He was speaking before a large group of press people gathered for a recent tour of the company's production, engineering, and marketing facilities for its Honeywell 800 and 400 computers in various suburbs outside Boston. His remarks, the company's obvious certainty that production of electronic data processors will quintuple in the next five years, and the vast assembly line created by Minneapolis Honeywell to produce its

U.S.-Soviet military race spu rapid d



ECEVERY PHASE OF U. S. ECONOMY

machines, were all tokens of the overwhelming acceptance of the electronic units by American business generally.

There has been no real question for years, of course, of electronic data processing being a fad, a momentary business infatuation that would have no really long-term effects on the business picture. This idea, which still had its partisans as late as the middle fifties, has long ago been swept away before the avalanche of new electronic equipment produced, sold, and installed.

But even in the face of this avalanche—which is accelerating rather than diminishing—we still have assurances from all sides—writers, authorities, leading businessmen—that we are in the first stages of an evolution rather than a revolution. Moreover, we are told it is an evolution which will create more—and more rewarding—jobs for everybody, will not really change company structures very much except to make company operations more efficient, and, finally, will make these slight changes on such a gradual basis that the effect will hardly be noticeable. Significantly, the manufacturers of electronic data processing equipment are not prominent among these prophets.

ce spu rapid development of computers.

Honeywell assembly line where workers hand-wire chassis modules for business computers indicates dramatically rapid pace of

Each computer can help father new generation of improved computers

It is the thesis of this article that these statements are based mainly on wishful thinking, that we are in the first stages of a revolution of profound significance, and that only by looking at the problems that may arise from this revolution can we hope to meet and master them. We can solve the problems that will come as long as we don't pretend they're not there.

Impact greater than Industrial Revolution

It is the thesis of this article that we are beginning a clerical and industrial revolution—and a management revolution as well—and that the tempo and pace of the revolution will be far greater than those of the first industrial revolution. This revolution will affect every aspect of our business, of our economy, of our educational system, of our society as a whole. We can insure that these changes are planned for in advance—or we can pretend that nothing is happening and face the strong possibility of having to take emergency measures in a crisis situation later.

The first industrial revolution, which brought such profound changes to all Western countries, was a development sparked by economics, not subsidies. Machines were developed and marketed to private business by entrepreneurs. The market was open, but a man risked his own capital and time trying to develop a machine, and was rewarded only if he succeeded. Finally, the need of private business for labor-saving machines was the primary reason for their creation and improvement. Thus, there was always a self-adjusting economic control on the introduction of new machinery.

But today, the electronic machines which are being introduced at a faster rate every year are not being developed primarily to meet current needs of business. They are being developed to a large degree on the basis of work done by research staffs. And a large part of the research budget comes from government grants made under our defense effort against the Soviet. No electronics manufacturer is using government money to do basic research for use in his own products, obviously. But the work done, the discoveries made in government contract work become part of his company's working store of facts and developments. They can be incorporated or adopted for use in his own commercial products. It is significant to remember that the first giant digital computers were developed during the last war.

Thus, the first element of our situation today is that new developments are being achieved at a forced pace, rather than a normal pace; that many computer manufacturers have enormous research and development staffs in comparison with business as a whole.

That's one primary reason we're in a revolution which is accelerating faster than the first industrial

office automation; automatic wiring machine for same task now being tested at plant illustrates dual nature of automation.

revolution. There are generous funds being plowed into this one just to insure that it does accelerate as fast as possible. As a result, business and industry are being offered more developments in a shorter period of time than ever before.

Moreover, electronic data processors are in one vital characteristic completely different from any machines that have ever been used before. An electronic data processor can be used to aid in developing an improved version of itself, just as it can be used as an aid in other engineering and scientific problems. Thus, a computer to a degree, can help to father a new and improved generation of computers. And finally, electronic control elements can automate the production of computers.

Therefore we can expect to see a constant acceleration of the pace of improvements in electronic data processing equipment during the sixties, and in the widespread acceptance by business of electronic methods. This would certainly imply profound effects on at least three major areas of our society:

1. The clerical employment picture in this country.
2. The power structure within the average American company—the relative importance and authority attached to various company functions.
3. Executive selection, development, and training techniques.
4. The country's educational patterns and needs.

Let's review the possible effects of automation on clerical employment. We all know of the many companies which have introduced computers, and have been proud to report that not one person was fired as a result. People were "relocated." And—then comes the meaningful phrase—"eventually normal courses of attrition brought everything back into line."

Basically, this means that individuals weren't fired, but former jobs were eliminated and new hires were cut.

Job elimination bound to spread

And this course was followed in the initial stages of automation, when a computer was brought into a company for one specific, or a few specific purposes. But, as the computer within any given company begins to take on work from other departments of the concern beyond accounting or payroll, or whatever function it was first brought in to perform, the effect on jobs is bound to spread.

This effect is masked to a certain degree at the central computer location because added staff there disguises it, and because computers are generally made the focus of a concentration of clerical responsibilities that have been scattered through various company departments and locations. Electronic data processors, in the long run, generally lead to a recentralization of the functions they take over. Thus, at the central point there may be an absolute increase in clerical personnel, but clerical processing lines in the field, in the sales offices, the plants, the warehouses, diminish as the computer assumes more and more of the traditional clerical functions.

No one can be quite sure what the dimensions of

(*Continued on page* 120)

As company integration moves forward, sales, transportation, even production, will all be tied together and the . . .

OFFICE WILL RUN EVERY BUSINESS ACTIVITY

By RALPH E. WEINDLING
Vice President-General Manager
John Diebold & Associates, Inc.

ONE OF THE most significant facts about office management in an era of automatic data processing is that the functions of the "office" are undergoing radical change. As advanced data processing concepts and techniques are more widely applied and perfected, the office of the future will be fundamentally different from the office of today: It will be different in function, different in kind, different in personnel, and totally different in scope. As a matter of fact, 15 to 20 years from now in many companies the office as a separate entity will be non-existent.

This change has already started, and there is no need to wait 10 years to see its effects. What is required is a clear plan for the future that will set sensible objectives for the company and assure that present steps – taken for immediate profit – tie in with the basic needs of the organization and the future expansion of data processing and communications facilities.

Existing technical capacity would already allow us to go much further than most companies have gone, and this technical capacity grows daily. Managing directors and top management of all titles are saying—either proudly or angrily—"I am taking personal charge of our data processing program." New titles are being adopted, and former "office personnel" are finding themselves faced with problems in areas completely new to them: coding, calculation of formulas, programming a production planning activity, or establishing stock levels mathematically.

The point is clear: "The office" is in a state of flux—even revolution. Depending on how one defines one's terms, it is either being virtually eliminated, or it is strikingly expanding its scope and activities.

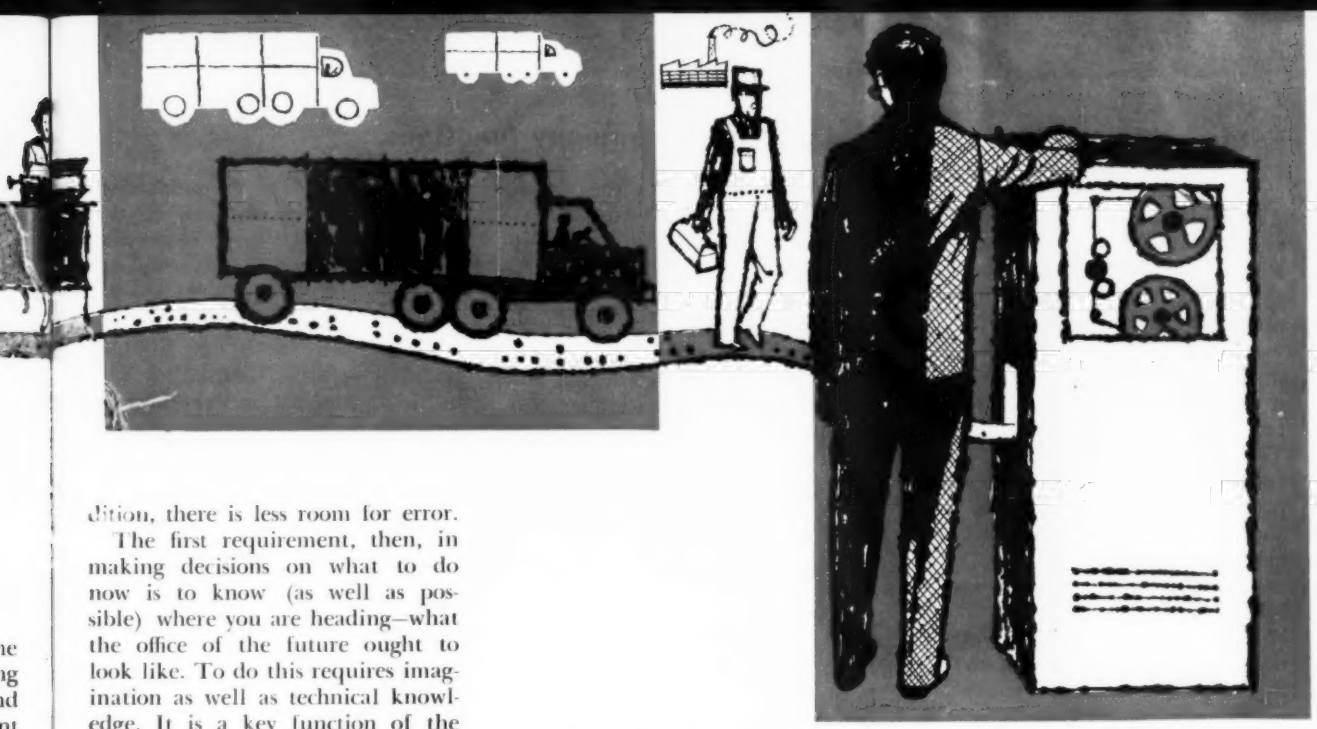
In reacting to the implications of science for the office of the future, a double focus is required—a focus on what is immediately possible and practical, and, equally important, a focus on what is "just around the corner." It is unsound to wait constantly for the next development, just as it is inadequate to base one's plans only on what is available—or what can be ordered from the drawing board—today.

Navy is 10 years ahead

A consideration of the future activities of a data processing activity is not an academic exercise. It is the key to the right answers to questions concerning what should be done now – what kind of system should be designed, what place in the organization a data processing center should have, what kind of people to seek, what kind of training to provide. A proper view of the future can influence broader decisions such as where a new plant should be established. These considerations are basic to planning and organizing for the office of the future.

Most of the normal questions about what should be done now have self-evident answers once the basic direction of data processing activities has been established, and this direction must consider present as well as future potential. The U. S. Navy, for example, has data processing plans for more than 10 years in the future. Objectives are set for each of three phases, one of which has now been completed. Each step or acquisition that is taken by the separate commands is reviewed in the light of this basic plan, so that over a reasonable period of time a consistent pattern will develop. The plan is constantly reviewed, and day-to-day decisions are made with full recognition of existing organizational and immediate operating factors.

Other organizations have not been so fortunate in their planning. One large manufacturer that uses more than seven large-scale computers—from the IBM 704 to the 709—undertook its first co-ordinated top management study of data processing and computing activities five years after it installed the first computer. The final solution was a compromise, because a pattern had already been established that could not be reversed overnight. A large manufacturer of electrical equipment is now, for the first time, taking a corporate-wide look at where its data processing activities are leading. For the non-giant company, the establishment of a basic direction is even more important. In the first place, the potential is to some extent greater, for the problems are more manageable. In ad-



dition, there is less room for error.

The first requirement, then, in making decisions on what to do now is to know (as well as possible) where you are heading—what the office of the future ought to look like. To do this requires imagination as well as technical knowledge. It is a key function of the man charged with data processing responsibility in his company.

Closed loop system

In effect, "the office" will change from a series of scattered activities throughout the company concerned largely with historical recordkeeping and reporting, into an integral part of the executive and decision-making process, serving as a nucleus around which the internal activities of the organization revolve. (Internal activities here include everything that does not require human contact. They would exclude such functions as selling, negotiations, and some personnel selection.)

The traditional function of the office has been recordkeeping and reporting. Financial records are only one example of this and the simplest at that. In essence, even the "dynamic reporting" that has characterized sound management practice consists of the preparation of reports on which people should take action: sales analyses, financial forecasts, production reports, cost and budget variances. In most cases the action to be taken is not obvious. A decision is required, and only then are "action instructions" issued.

Another characteristic of present data processing activities is that they are scattered throughout the company. A group in the sales department handles office activities related to sales. A separate group concerns itself with production, another with costs, and a central office with accounting and financial questions. Punched card installations have already brought about some concentration of these activities, but it is a concentration of location rather than a functional concentration.

The future office will be much more than a source of reports. It will make middle management executive decisions, on the basis of policies established with the help of all the tools and techniques that science can offer top management, including the more lasting of the techniques that are now loosely called "operations research." It will, by its very nature as a decision making and executing organ, group all the major data processing activities of the company together.

The picture of such an automatic office is not new. A closed loop system to adjust production to sales or sales forecasts, make further adjustments on the basis of production and inventory data, and possibly tie it directly with an automated production system that responds to variations in directions as developed by the data processing system, has often been discussed. By combining all this with the possibilities of intercompany data processing and common languages between machines with instantaneous communication possibilities between distant points (warehouses, plants, customers, and vendors), and with automatic recording, logging, and control mechanisms, it is easy to talk about an "office" that produces a minimum of paper and is truly a nucleus of company operations. The significant point is that, to a surprisingly large degree, equipment already exists to perform many of the necessary individual functions. A look at the military and some of the more advanced business applications is all that is required.

Office will make policy

One manufacturing company has effectively developed the concept of a "data hub," a central source of information that can serve as an instant inquiry station for executives who need data for decision. The hub is based on a complicated and sophisticated analysis of the company's data flow and data requirements, and it forms the basis of a long-range plan for the company. On that basis, each current step that is taken brings the company one step closer to its ultimate aim. An insurance company is taking advantage of the great strides in computer communications to develop a company-wide data transmission and communication system that literally ties together all the operations of the organization into one major data processing activity.

This does not mean that every

company should have such a system. There are thousands of obstacles, and cost is only one of them. Cost will come down, and techniques will be perfected. Electronic data processing will be economically and technically possible for many industries. Whether it will be possible from an organizational or systems viewpoint is another question. The answer here is not that it will be possible, but that it must be possible. But it is in the systems and organizational areas that the most time will be required.

An office with such functions is hardly an office, but an integral part of every phase of company operations. It is also the basis for the non-automatic activities: policy formulation, negotiations, selling, and research.

Non-office is "underhead"

New functions mean new relationships. Production control, production planning, sales and order processing, inventory control, accounting, budgeting, and even production itself, will no longer be activities that have their own data processing activities. They will not be activities that are "serviced" by a data processing department. They will be identical with the data processing activity. This means that within the next few years a lot of people who may have little regard for each other now are going to have to get together. Obviously, such a change will significantly change responsibilities and relationships, which are the basis for organization. Such a change will also make an impact on the kind of people required to plan for "office" activities and to be responsible for the company's data processing activity.

But there are other complications. A giant company may be able to afford separate computing facilities for engineering, research, technical calculations, and certain management science problems. Most firms will find that they are using the same facilities for commercial as well as scientific data processing, partly because computers are becoming more "general-purpose," partly because the larger the computer, the more one gets for the money, and partly because, as commercial data processing becomes more sophisticated, many of the qualitative differences between engineering and commercial problems will diminish.

It should by now be fairly clear why the office as we know it will undergo fundamental changes. Implicit in its new functions and relationships is the clear conclusion that the differentiation between "office" and "non-office" will become extremely vague, to the point of disappearing altogether. What is "non-office" will be "underhead." An operation center for the organization will develop that can, roughly, be compared to an automatic pilot that also takes care of flight lists, logs, and manifests. The automatic pilot will not decide where the plane is going and who the passengers are nor what their fare will be. The so-called "office" procedures will be combined with the "non-office" procedures into an integrated whole. Whether automated production is or is not included will not affect the basic change.

This complex—it is difficult to call it an office—will be a complicated combination of acitivities. There will be the technical functions concerned with keeping the machinery going. There will be the function—also a fairly technical one—of evaluating new technological developments in terms of the systems' needs. There will be the function of programming the equipment and of constantly surveying the methods used to assure that the results are reasonable and correct. There will be the task of assuring the translation of conclusions (or decisions) into action on an automated or non-automated production line. But there will be need for much more than a group of technicians. Another major need will be for what we can call systems analysts for lack of a better term. These are people who must constantly test the assumption on which the system is operating, interpret danger signals, and develop improvements. These will be mathematicians for the planning and forecasting functions, engineers for the systemization of the production processes, and systems men for the determination of basic cause and effect and its translation into working formulas.

If there will be a bottleneck—and there will be—to the full application of this potential, it will be in the systems and engineering area and in the organizational questions more than in the technical area. The task of applying computers today is already significantly limited because enough is not known about the process—the production process, the decision processes involved in planning and control, the relationship between the variables of the system, and the real criteria for control and regulation. It is all but impossible to superimpose an integrated data processing system on an existing organization.

This last function or bottleneck is in the hands of the users of data processing equipment rather than of those who design and manufacture the equipment, although some of the manufacturers are helping with their research. Each company must define its own objectives, determine its own system, and define its own method of operation. This is not something that can be done quickly, and even the most tentative application of management science and computers constantly runs into the problem that relationships are just not adequately defined and criteria are non-existent.

Remove policy obstacles

It is a long way from the situation most companies find themselves in today to an integrated, automated system. Even for those firms that are further advanced, much remains to be done. But it is important to note that significant steps have been taken.

The first thing to do in getting from here to there is to find out where you are going. This requires a good deal of knowledge and some imagination. It is surprising how many firms approach automatic data processing on a thoroughly uncoordinated and application-by-ap-

plication basis, and certainly without any concept of where they should be 10 years hence.

The value of a long-range plan is not that it will force the application of new techniques before it is sensible and profitable to apply them. It is only to allow solutions that are practical today to be taken with a view to facilitating future developments.

Such a long-range plan may be inexact, it should certainly be flexible, and nobody should expect that it will ever be implemented "as is." It should, however, try to answer such fundamental questions as these:

To what extent will production processes be automated?

How will the various functions or activities of the organization communicate under the possibilities that appear imminent?

What are the main systems and technical obstacles to a fully integrated automatic system? Can production be integrated with data processing?

What will be the organizational structure under alternative possibilities?

What are the present organizational factors that conflict with the concept of what should be expected 10 years hence?

What data storage, processing, and transfer media will be the most probable for the company?

What should be the company's policy with respect to centralization and decentralization of responsibility, of activity, and of computer activity?

These are some of the factors that will point to steps to be taken now. They will also provide some fundamental criteria with which to judge between alternatives that present themselves immediately.

The next step (and it is really a series of steps) is to try to meet the long-range plan at a profit. This means making use of those developments that can profitably be used to the extent that they fit in with the basic plan. It also means a long process of systematization of present procedures to remove, to as great an extent as possible, the intuition that is involved. For some activities, judgment and intuition will always be required, *e.g.* launching a new product or dropping one. On the other hand, much of what is considered "judgmental" today is really mechanical. Some sales forecasting is an example. And many activities use judgment as a basis because the logical procedures have never been analyzed, *e.g.* production scheduling.

These steps should be taken with a view to making maximum use of techniques now available that can be profitably applied, and to preparing for the opportunities that will develop as equipment becomes less costly and more accurate. Unless these steps are taken now, it will certainly be impossible to "catch up."

The technical possibilities of today are certainly only weak forerunners of what will be possible tomorrow, but even these possibilities are very seldom used to their full extent. This is a paradox that should serve as a challenge to those responsible for data processing. Perhaps, more appropriately, it should serve as a prod to those whose decisions are required to remove the organizational and policy obstacles that stand in the way.

Computer costs decline

Very little progress will be made without the people and the organization necessary to do the work. This requires training. It requires the accumulation and development of groups capable of realizing the potential that technology offers. One of the first steps is to give the data processing activities a proper place in the organization. In the short run, the formal position is not of crucial importance provided that proper, informed relationships exist and provided that the men responsible are strong. For the longer term, however, a proper organizational position – reporting directly to general management and not related to a specific department—is essential.

The application of mathematical techniques is one more facet of the entire picture. Computers are tools for making some of the necessary calculations, but they (and the techniques) can be of no help if the people cannot use them or if there are organizational obstacles to the application of the results. These activities must also form part of an overall picture, partly because they can often be incorporated as

an integral part of sophisticated data processing, and partly because only a sound data processing system can produce the input data to solve the problems.

Automation, or integration, or science, or what have you, for its own sake, is unsound in business. That is why each step should be taken with profit in mind. That is also why careful thought must be given to each step. But "cost" should not be used as an excuse for doing nothing. It is safe to say that what seems too expensive or too large-scale today will become economical in the future. Clerical costs are steadily increasing, directly and indirectly. Overhead is steadily increasing. The pace of research and the need for better control is also increasing. The only thing that is not increasing is the cost of automatic data processing equipment, and this is constantly decreasing. Technological changes that will further reduce costs are imminent; some have already been announced.

Today, every dollar buys much more computing and data processing capacity than three years ago. At some point in time the curves of rising overhead, need for better management, and higher control and clerical costs will meet the curve of declining computer costs. Then automation of the office, in an integrated sense, will become commonplace. At that point, the companies that have planned and organized for the future by doing what is possible today will be evident; the others will be hard pressed.

CONTROL AT **AMERICAN PRESIDENT**

James D. Short, Supervisor of Tabulating, American President Lines

"We did away with 300,000 postings!"

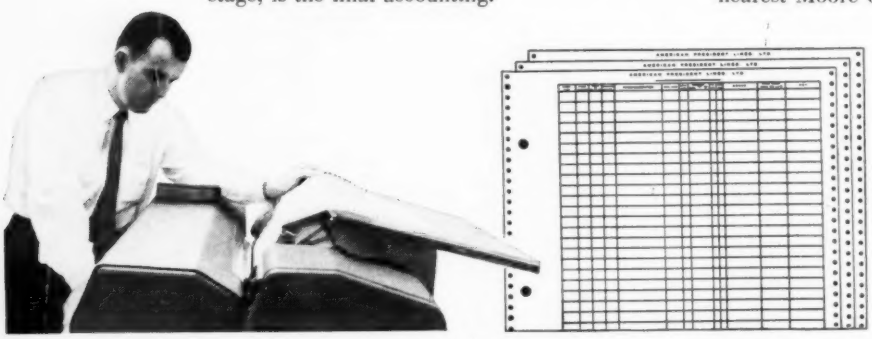
THE SETTING: American President Lines operates 30 cargoliners and 5 passenger liners. To make up voyage revenue and budget reports, the company collects and sifts mountains of data from scattered ports all over the world.

Reservations from 18 offices, 30 principal agents and thousands of travel agencies funnel into San Francisco headquarters every 24 hours. Facts in foreign weights, measures and currencies are converted to U. S. equivalents, summarized, and printed. The system also produces many other important reports.

THE SYSTEM: Data received is put on punched cards. An electronic accounting machine processes the cards, converting to U. S. standards, and prints the information on a daily summary sheet, an interim revenue report. This is revised daily as new figures come in and, in its final stage, is the final accounting.

After a ship has sailed, more incoming data is carded and radioed to sea. After a 120-day cruise, a budget report is run off, summarizing the vessel's performance—estimated vs. actual. A final budget report compiled in 10 days, as against 8 man-months, is the basis of management decisions on cargo matters, revenue volume, receipts and expenses, equipment needs, etc. The system speed-up resulted largely from eliminating 300,000 tedious manual postings a year—a crucial operating gain. The Moore forms in the system are the Line's control in print.

THE COUNSELORS: "We appreciate the system control and the help in forms design which the Moore man gave us," says James D. Short, Supervisor of Tabulating. For more details on how Moore may be able to help with *your* problems—no matter what kind or size of business—write the nearest Moore office. No obligation, of course.



MOORE BUSINESS FORMS, INC.
Niagara Falls, N. Y. • Denton, Texas
Emeryville, Calif. • Over 300 offices and factories throughout the U. S., Canada, Mexico, Caribbean and Central America.

MOORE

Build control with

MOORE BUSINESS FORMS

(Circle No. 33 on Reader Inquiry Card)

PERSONNEL

The personnel function may be, in the words of one of the articles in this section, "more acted upon than acting," in the rapidly changing office picture. But it is, paradoxically, more vital than ever today, when the impact of technological developments makes the quality of workers more important than ever before, and also makes it necessary to attract workers of entirely different standards and needs from those of the past.

TECHNICAL ADVANCES PROMISE CHANGES IN TRADITIONAL COMPANY PERSONNEL STRUCTURE

New importance of technically and scientifically oriented workers will force adoption of new personnel techniques

By EDITH CONNER

THERE WAS a time, not so long ago, when three areas of major interest to business management were treated in the *Trends and Forecast* issue of this magazine as separate, more or less independent, fields. They were related, yes, but only because each was of concern to office administrators, rather than linked so closely to each other that development in one area could only be fully understood in terms of knowledge of what was going on in the other.

In this issue, "Automation," "Systems" and "Personnel" still occupy their distinct sections, but in this first year of the sixties it's becoming more and more apparent that the three areas are so significantly allied, so interdependent, that there must be considerable overlapping in any discussion about any one of the three.

No one but the most complacent of optimists could argue that automation, in both its effects on the business picture, and its effects on personnel recruitment, training, and, ultimately, employment levels themselves, is not one of the most serious problems facing management today. By the same token, as systems planning becomes more and more inevitably tied to the trend toward increased automation, it both aggravates and accelerates the problems which management must cope with and solve.

Personnel is the passive area of the three – more acted upon than acting as it were. But whether it changes in response to trends and stimuli completely outside its control or doesn't isn't the point – the point is that the problems, the challenges, the very atmosphere in which personnel administration works, are changing at a dizzying rate.

Every company that automates its factory or office changes, as a result, its entire personnel picture. It not only changes its personnel demands quantitatively, which automatically changes the minimum levels it will accept in new employees; even more significantly, it changes its personnel standards qualitatively in terms of the type of people it needs. Concurrently, as it downgrades old functions, not only at the minor levels, but also at the middle management and even the top management levels, it changes the standards and values felt important by those in authority. In effect, it changes the whole business picture.

Downfall of the titans

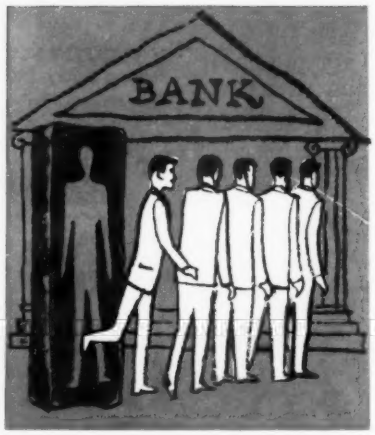
As production and sales are downgraded – the inevitable result of automation – all other functions within the typical company increase their relative importance in proportion. Two areas – administration and research and development – have this factor on their side in the polite but eternal struggle for power that goes on in every American company. They have other factors that give them an added advantage in the changing balance of authority. Administration becomes increasingly important in direct ratio to the degree by which the company becomes a "machine" in which every outside action provokes an automatic and planned company reaction. In such an entity the most important factor is how well and how smoothly the machine works. The person or persons who maintain the machine are the most vital members of the company "team," which is of course no longer a team at all but a force organized, recruited, and directed in order to achieve certain given objectives.

There is one exception – not finance, which in its turn will become unimportant under the developing abilities of the machines– but research and development–the lair of the last and perhaps the only rugged individualists. For it becomes just as clear in the very rapid pace of business today, when the titan of twenty years ago is the poor relation of 1965, that research and development offer most companies their only insurance against future failure. The point was made in a recent *Harvard Business Review* article that many companies, which a generation ago were the great names of the business world, are today hanging on to existence because of their blindness toward what they really existed to do. The railroads, which in the early twenties were the largest utilities in the nation, are in dire straits today because they regarded themselves as railroads, rather than as firms engaged in the business of transportation. They ignored the menace of air transportation rather than ensuring that *they* built the first airlines. The coal magnates did the same thing, only to see oil and natural gas empty their towns and close their mines. The fuel concerns today are blithely ignoring the development of atomic energy which can possibly, in its turn, make them obsolete.

But many companies have taken warning from this clearly discernible pattern, and are today concentrating a major part of their

Help Wanted—Female
STENOGRAPHERS
SECRETARIES
Excellent Starting Sala
SECRETARY
SECRETARY
SECRETARY—MEDICA
ACCOUNTANT
INTERNAL CONTROLS
BOOKKEEPER-COST
Starting Salary, $100 Wk
ACCOUNTA
ACCOUNTANT
COMPUTER APPLI
SYSTEMS MEN
DIRECTO
DIGITAL
709
ANALOG APPLICATIO
SENIOR PROGRA
COLL GRADS—TRAINEES
COLLEGE STUDENTS
Oppty #1—Methods—Fee
WARD Agcy 5
Oppty #2-Security Resea
COLL GRADS—MGMT
Coll Grads-Mgt-Fee Pd
Liberal Arts Grad $48-$
EM EQUIPMENT ANALYSI
TRONIC DATA PROCESSIN
ROGRAMMING ANALYSIS
MATHEMATICAL INVESTIGATIO
ROGRAMMING MANAGER
MANAGER
SPECIALIST

Many college recruitment teams apply standards first developed by banks and insurance companies. The question is: are the qualities that make a man desirable executive material for a conservative financial institution the same qualities needed in a competitive manufacturing company?



Automation is changing the personnel pyramid

budget on research, both applied science in their own current fields, and pure science for new fields they can enter. This emphasis, in turn, brings an entirely new breed of people into the business picture on a high and potent level, at precisely the same time that technically and scientifically oriented people are moving into the office in ever greater numbers. Their needs, their standards, their values, and their prejudices are totally different from those that have been current in the business picture in the past; their total number is small in terms of the demands, and this means they can afford to impose their standards and their will to a greater degree than employees have ever been able to before.

Listen to the mavericks

This is another major new problem for personnel administration. It must deal now not with the accepted company pattern which graphically is usually represented as a pyramid, with a very small top management sector at the apex, a wide band of middle management just above the center, and a wide supporting base of workers, both clerical and production. The new corporate structure — or at least the corporate structure that is becoming more and more the pattern — is rather in the shape of a diamond, with top management occupying the narrow top portion, a broad band of technicians, scientists, and specialists occupying the wide upper portion of the diamond shape, and lower management and basic workers grouped together at the bottom narrowing point.

This not only presents the personnel functions with severe problems of recruitment; it also offers entirely new and unforeseen problems of administration. For the technical and scientific people at the higher levels – and the lower levels, too, for that matter — do not accept or believe the standard maxims of business. Their instinct and their training is not to believe but to question and to investigate. Given the traditions of some of the strongest American businessmen which are authoritarian, and the accretions of many large corporate structures, which cloak individual responsibility for any decision in a maze of committee meetings, delay, and hope for the best, the impact of a completely different discipline and tradition is going to cause problems. Personnel will either have to learn to serve as strong interpreter and liaison group, willing to tell management when it is wrong just as soon as it will maverick mathematicians, chemists, and physicists, or lose its function entirely except for managing the lowest echelon—the minority of basic workers.

These are, at the moment, comparatively long-range problems, although some of the largest and most progressive companies are already facing them today. The great majority, as always, will not have to meet these problems as soon as the leaders. But the shadow of the future is already quite clear. These are problems for which the majority of companies had better prepare. The businessman who can say in response to every idea, "It's no good — I know the field better than you, and I don't want to waste any more time on it," is doomed right now. He's talking to people who probably know the field — or the field as it is changing — far better than he does or ever will again.

Students do the recruiting

It is the delicate responsibility of the personnel administrator to show the boss that his future lies in at least listening to the experts — and listening with an open and receptive mind.

The more immediate problems, though, are akin to the long-range areas coming up. There's the need to train workers to man the new and increasingly complex machines that are coming into the office, and the problem of what to do with the workers who are displaced — and workers *are* being displaced. For there are no two ways about it — in a static situation where the company is not expanding rapidly, automation cuts out more jobs than it creates, even though those it creates may be on a slightly higher level. There's the decision as to whether seniority or aptitude should be the guide in deciding which workers

will be instructed in the new techniques. There will be a shift in the qualities considered most desirable in workers; for it seems to be fairly well established that an understanding of the internal logic of language is perhaps even more important an attribute in a computer programmer than familiarity with mathematics. Thus, the emphasis on numerical ability at the lower technological level is apt to give way to a greater emphasis on linguistic abilities.

There's the problem of selection for management training. Many experts believe the traditional company policies which stress recruitment at the colleges in the spring are good as an idea, but wrong in practice. They point out that many of the selection policies in their particular emphasis on desirable qualities in a candidate have blindly adopted selection criteria developed by other companies, and they point out that two types of institutions that first recruited heavily on college campuses were banks and insurance companies. The question they raise: Are the qualities desirable in a management executive in a conservative financial institution the same qualities that are desirable in a dynamic, highly competitive manufacturing company where too conservative a viewpoint can be a severe handicap to the individual and ultimately to the company?

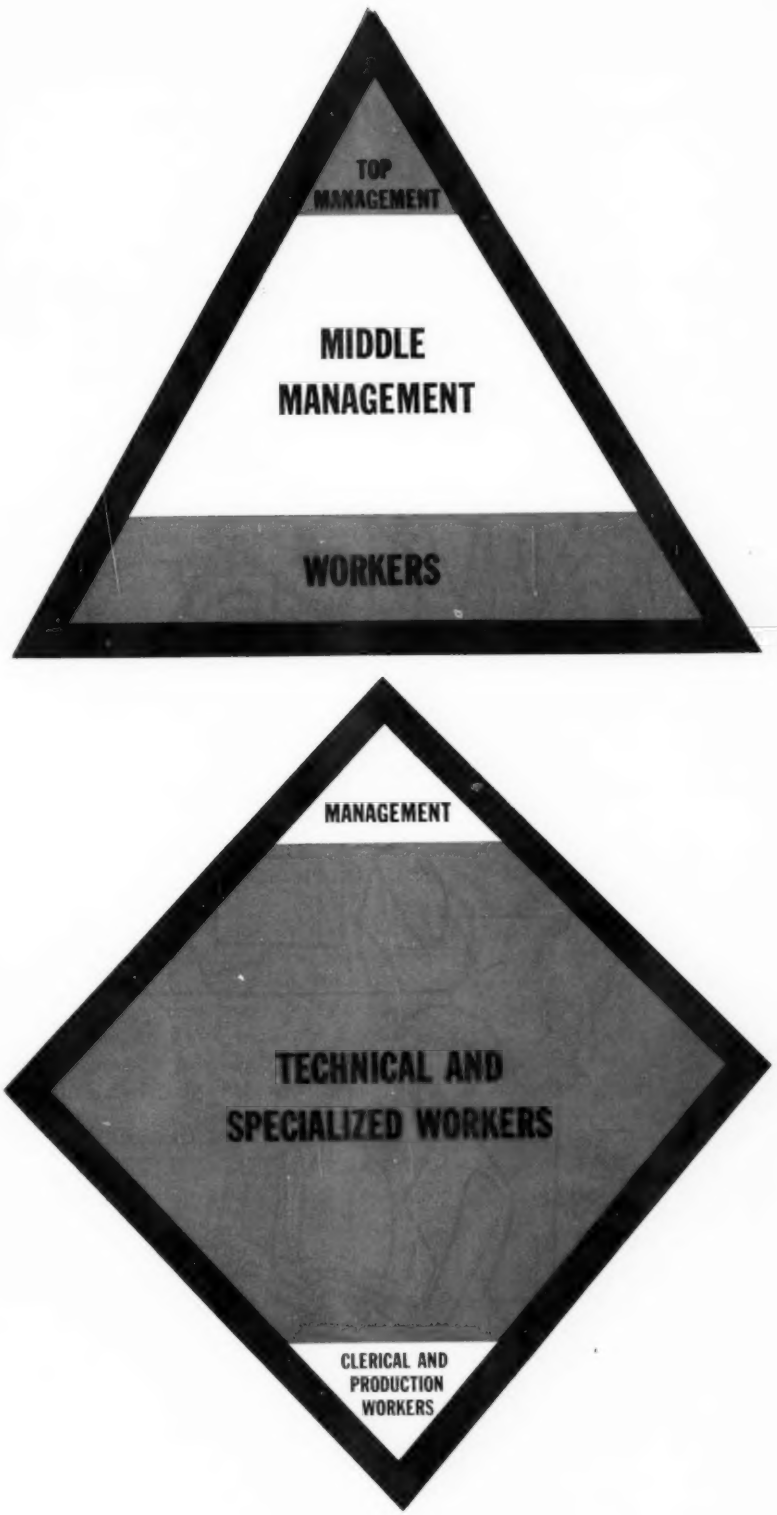
A new program to aid business school graduates, who are more anxious to join companies where personal growth possibilities are good than they are for the security offered by a large corporation, has recently been announced by the Harvard Business School. Called the Small Business Program, it puts a reverse twist on personnel recruiting. Instead of waiting on the campus for the right boss to appear, student representatives are sent all over the nation to "recruit" employers, who ordinarily would not seek out the colleges as a source of potential executives.

Advantages of the program as far as the successful candidates are concerned:

1. It clears the way for them to perform functions at an early date which can have a direct effect on the overall operation of the business.

2. They can be members of a small management group.

(*To page* 124)



The traditional company personnel structure is changing radically; a whole new layer of technical and scientific personnel is now appearing in many American companies while the base of clerical and production workers is shrinking.

LET'S GEAR MANAGEMENT DEVELOPMENT TO CORPORATE REALITIES

By JOHN COLLINS
Management Consultant, New York

Proper climate is essential to management development.

THE WHOLE IDEA of developing managers, that is, increasing the number and quality of trained and competent executives at all levels continues to receive the close attention of the business community. One needs only to review the literature of management development and discuss some ideas current in these programs with businessmen and specialists in the area to gain an insight into the problems management development faces in the 1960's.

These problems fall into three categories: one, developing a satisfactory climate within the company for management development; two, defining the basic management skills; three, improving training practices.

Building a satisfactory climate must start with top management. Top management must both recognize what management development can do and be willing to invest in this judgment. This requires that top management first examine its assumptions about managers in organizations. For example, some top management believes that: most managers are incapable of directing themselves toward organizational goals and therefore must be pushed toward them; they believe that managers are interested solely in the economic benefits of employment and that other benefits either are nonexistent or are too trivial to bother with; and they believe that management is getting people to do what they should do but don't want to do, preferably in such a way that they don't know they're doing it.

If top management holds these assumptions about men in organizations, management development will have a difficult time getting

started. Or, what passes for management development will be a vague shapeless activity without direction or purpose.

A more forward-looking approach, in the interest of management development, would come if top management accepted these assumptions: one, managers are capable of directing themselves toward organizational goals and by so doing they satisfy some of their personal needs. Two, managers work for many reasons other than economic, and these are as important as the economic benefits from employment. Three, management consists of establishing and maintaining goals and standards in such a way that managers within the organization can provide their own motivation toward reaching their goals and derive their own satisfaction when these goals are attained.

If top management accepts these assumptions, the proper development climate can be established. Two immediate benefits are derived. The first is that management development will be related directly to broad company goals. In this way it is possible to measure the effectiveness of the program at a later time. Second, the line and the staff can work more effectively when both groups are working toward the same goal. It is well established that line management must do the work of management development and that staff assistance can only provide aid and assistance for the line to carry out its job.

Four basic skills needed

It is obvious that certain managers need specialized skills. Managers of the accounting department need a knowledge of accounting; managers of marketing need a knowledge of that subject, and so on. Yet, is there a core of skill which all managers, and first-line supervisors up to top management, must have to perform satisfactorily on any managerial job? We cannot answer this question with certainty, although there have been many studies undertaken to determine just what these basic skills are. Most of the studies are deficient first, because there is a certain vagueness in them as to what constitutes a manager; second, because there is a lack of adequate criteria as to what constitutes successful on-the-job performance; and third, the studies that examine certain personality traits which successful managers seem to have, fail to consider that having or not having certain traits is relatively meaningless. It is, in fact, the way these traits are combined in the individual that is significant. And at present we don't know much about this area.

Despite the short-comings of these studies, it is possible—again through examination of the literature and discussion — to locate four basic managerial skill areas. These are: the problem-solving skill; organizational skill; knowledge of interpersonal relationships; and skill in communications.

The problem-solving skill consists of the ability to determine and anticipate the need for action, to search for various alternate lines of action and evaluate the probable consequences of each alternative, and to make a valid choice among the alternatives in the light of a complex of organizational objectives. Problem-solving must be done in an environment which is continually changing without full knowledge of all the relevant variables and their interrelationships, and often in the face of partially conflicting organizational objectives.

Organizational skill is that ability to devise administrative arrangements which will contribute to effective decision-making. These arrangements must generate needed information, provide for useful division of labor, and facilitate the translation of decision into action. In addition, organizational ability also implies the skill to maintain and use these arrangements effectively.

The skill we speak of in interpersonal relationship is part of the organizational skill, but in essence it amounts to the ability to exercise personal leadership in a variety of organizational situations.

Skill in communications has been much discussed and, of the four, has received the most attention. It involves developing the capability to both receive and interpret, as well as transmit, information. This information may either be verbal or numerical in form, and the verbal communications may either be written or oral. The skills we seek to develop meet the three kinds of skill needed in the business world. The skill to formulate one's ideas and transmit them either orally or in writing; the skill in receiving and interpreting non-quantitative information; and the skill in generating, transmitting and interpreting the flow of data needed for implementing decisions.

I think we may consider that these are the core managerial skills. There are other skills, certainly. But if one must develop management training at all levels within the company, he will be well advised to consider these core skills in order to structure a proper program.

Next, skills must be used

There is another important consideration here. Management development specialists know that simply to teach these basic skills is not enough. We find increasing evidence that the difficulty in developing managers is in providing them with opportunities to use their knowledge. So management development is more than simply teaching the basic skills of management —it includes providing the opportunity for use of these skills. In a very real sense, management development should create situations within the company where managers are encouraged to try out their knowledge on the real problems of the company. By controlling their first efforts to use this knowledge they gain support and confidence in their ability to apply these skills. Many programs do a highly satisfactory job of teaching the skills needed to manage, but do a poor job of providing opportunity for those skills to be used. Many companies with high managerial turnover have learned to their sorrow that they provided the opportunity to learn but their competitors provided the opportunity to apply the skill. The evidence strongly suggests that one of the greatest reasons for managerial turnover, apart from economic considerations, is the failure to provide qualified people with the opportunity to use learned skills.

A fault found in many management development programs is one we could label "over-teaching." This is simply teaching managers

Development program must provide both knowledge and opportunity

what they already know but have no opportunity to use. We should face the fact that in company-run management development programs, employee expectations are raised simply on the basis of what the program holds forth. Some expectations take the form of a demand for more money as a result of completing training courses. But in any event, any manager is justified in believing that, if a company goes to the time and trouble to teach him a skill, the object is for him to use it. Also, he is entitled to believe that if he is hired because of certain skills he possesses, the company also means to make use of those. Yet we find an alarming number of courses in a variety of companies where the students are not properly selected. That is to say, the management development staff does not know enough about the student's knowledge, skills, and what opportunities the student has to use them on the job. The reason for this is simple. Many management development staffs spend so much of their time developing programs they have very little left for investigating, first, whether the programs are needed or, second, the kind and quality of the students they seek to attract.

Established bench marks

Another reason for over-teaching is found in the dual nature of management development. As has been suggested, management development must both provide knowledge and opportunity. When these staffs discover that the students have the knowledge but do not have the opportunity, they must have the courage to make top management aware of this situation. For they do not discharge their responsibility to provide opportunity simply by going over the old ground of providing knowledge. It would be well to consider what happens in many companies when top management discovers this fact for itself. In a great number of cases management eliminates the management development activity. It is heartening to note, however, that many large corporations particularly are doing a great deal more in the last few years in manpower planning, which is the keystone of the systems which provide managerial opportunity.

There is another failure, and this is the frequent misuse of teaching methods. Let us examine, for example, the methods appropriate to teaching problem-solving. There are three different emphases. The first is descriptive – to provide a broad base of subject matter knowledge.

The next emphasis in teaching must be analytical. After the general descriptive exposition of the subject matter it is necessary to provide the student with certain bench marks or principles, so that the facts being taught can be related to an integrated whole. The objective here is that the student should have, by the time the instruction is completed, a firm idea of how, for example, statistical analysis relates to problem-solving. During this phase of the instruction, the student is asked to solve problems, but they are clearly labeled as such and are used simply to give him confidence in the knowledge he is acquiring.

The third emphasis in our example of problem-solving is what we may call "managerial-clinical." The student has now been given the background of the subject and knowledge of the principles involved in problem-solving situations. In this phase of instruction the realism of business life enters the teaching. For, as everyone knows, problems do not label themselves. If we may use as a working definition of a problem the difference between what one expects to happen and what actually does happen, the student now must be given some situations wherein he is required to sift through data and identify the discrepancy by use of analytical tools he has been provided. The exercises used in this method naturally vary in complexity. At one end of the scale we might have a simple "in-basket" exercise with ample time to com-

Many methods are available for teaching the employee.

"Students must be given the opportunity to read and discuss materials."

plete the work. At the other extreme, the student may be required to participate in an interacting computer game where many additional factors are included, such as working with other people to gain information, lack of relevant information and the demand for rapid action.

What are major faults?

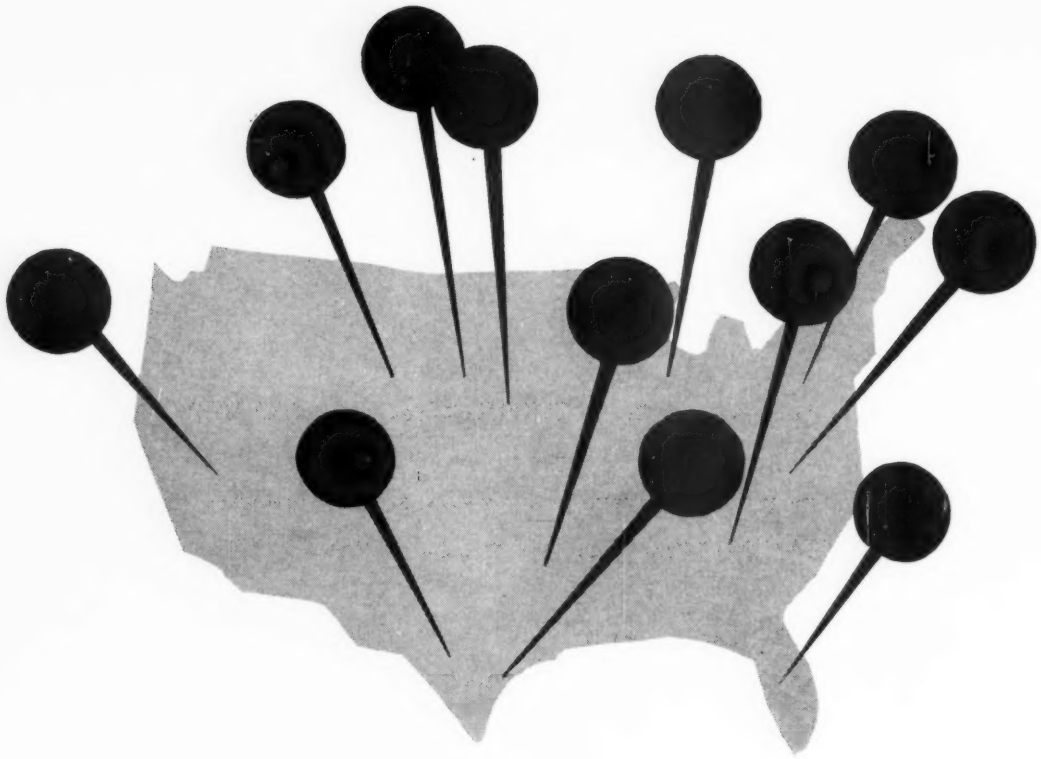
What then are the most frequent faults in the use of teaching methods following these three broad emphases? First is that the descriptive emphasis is often over-used. Too much time and effort is taken up in descriptive, subject-matter lectures. In many cases an appropriate number of outside readings would provide the necessary background. Two, in the analytical emphasis, insufficient attention is given to reading and written work. Because this emphasis requires stressing principles, some ill-advised programs are simply satisfied when the student can repeat by rote memory the principles the instructor wants to get across. Students must be given the opportunity to read and discuss materials relevant to various principles, and not simply memorize a single textbook. Also, it would be much more meaningful as an examination in, for example, a course in principles of organization, to require the student to prepare a two thousand word analysis of the organization of his immediate work unit. There is another benefit from this kind of examination, and that is that the student increases his ability to express himself in writing as well as his capacity for logical thinking. And this cannot be done with so-called "objective" examinations.

A third failure is emphasizing the managerial-clinical aspect of instruction before the student is fully ready. Readiness consists of a firm grounding, a knowledge of the systems of analysis required to function well. I have observed management training courses for first-line supervisors which used some of the more complicated Harvard case studies. These cases, designed for a sophisticated student, were far above the capabilities of these particular classes. The spectacle of students floundering in a sea of data was not a happy one. The instructor had difficulty in moving the class forward—the students were so lacking in knowledge that the small amount they did possess was quickly immobilized and the results were unfortunate. Part of this difficulty arises from the newness and the excitement that these devices create. Many of the new business games can, with great realism, recreate the business scene. I think the charge leveled against the computer games particularly, that they were in fact just games, does not do justice to their contribution to management training. It is sufficient to say that when the student's confidence in his knowledge of systems of analysis is firmly established, he is then able to derive maximum benefit from these kinds of exercises. His confidence will grow because he sees that the systems of analyses he has learned actually work.

Happily, the faults I have outlined above concerning the teaching of management subjects are rapidly being eliminated. The literature of management development reflects great and intense interest in challenging and exploring new ideas in the teaching of these subjects.

In the compass of this short article I have tried to make several points that I would like to summarize here. One, the top management of a company controls the climate of management development. If it can conceive that managers in a company can be treated as individuals with needs, desires, values and ambitions, and that these individuals' qualities can be put to work for the company's benefit, then management development, which is providing knowledge and creating opportunities for its use, can be served. Two, I have said there are certain basic core management skills, and that these are problem-solving, organizational ability, knowledge of inter-personal relationships, and communication. A sound management development program should address itself to providing these skills at all levels within company management. I have said that management training can be improved on these skills by giving proper emphasis to the descriptive, analytical and managerial-clinical aspects of teaching.

The importance of meeting our management development goals can be underscored if we realize that there are nearly four million "managers" functioning in our economy. Every indication is that in the decade of the '60s this number will increase rapidly if our economy is to grow and prosper.



Now! A low-cost way to automate sales analysis –

Keysort® Data Processing

Today, the businessman must know exactly *what* is being sold *where*. Yet, to the small- and medium-sized company, most data processing systems that can deliver this information *on time* are prohibitively expensive. Except Keysort.

Flexibility and economy

Keysort is the only automated data processing system flexible enough to fit your business as it stands *and* as it grows. It is the one system adaptable and affordable to companies of every size. Remarkably simple to use, Keysort requires only minimum training. It imposes no restrictions on your way of doing business, yet provides the whole range of management reports – order and sales analysis, territory analysis, inventory, etc.

Reduced clerical burden

Mechanically created, Keysort cards are code-notched with your vital information. Writing is thus reduced to a minimum. Figures are automatically tabulated and summarized direct to reports. You get the information you need *when you need it*. With least effort. And at lowest dollar cost.

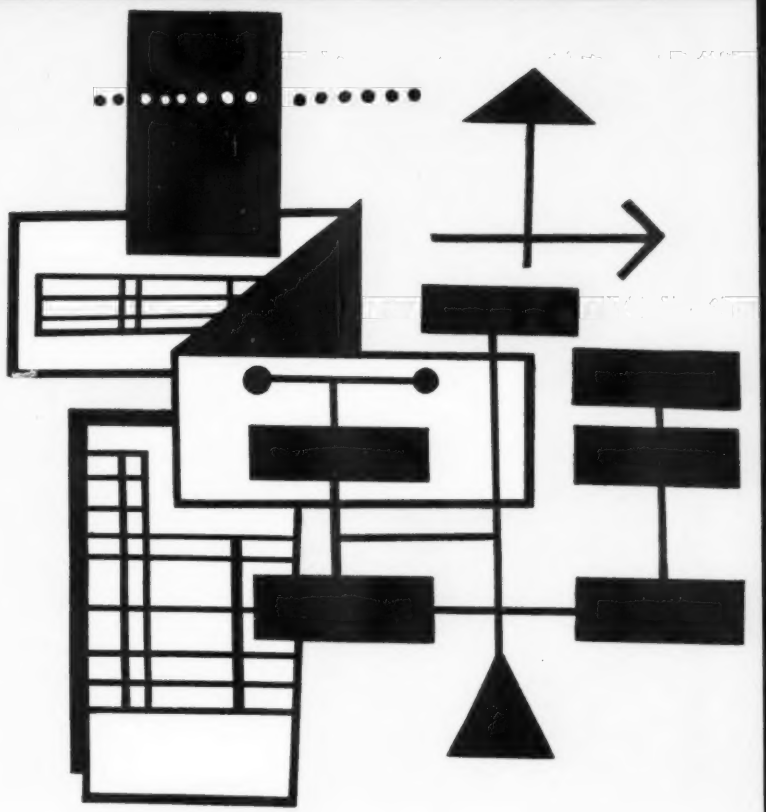
Documented case histories

Your nearby Royal McBee Data Processing Systems Representative will be glad to discuss a low-cost Keysort system tailored to your individual requirements. Call him, or write us at Port Chester, N. Y.—indicating the applications in which you are interested—and we will supply you with actual case histories from our files.

ROYAL McBEE *corporation*

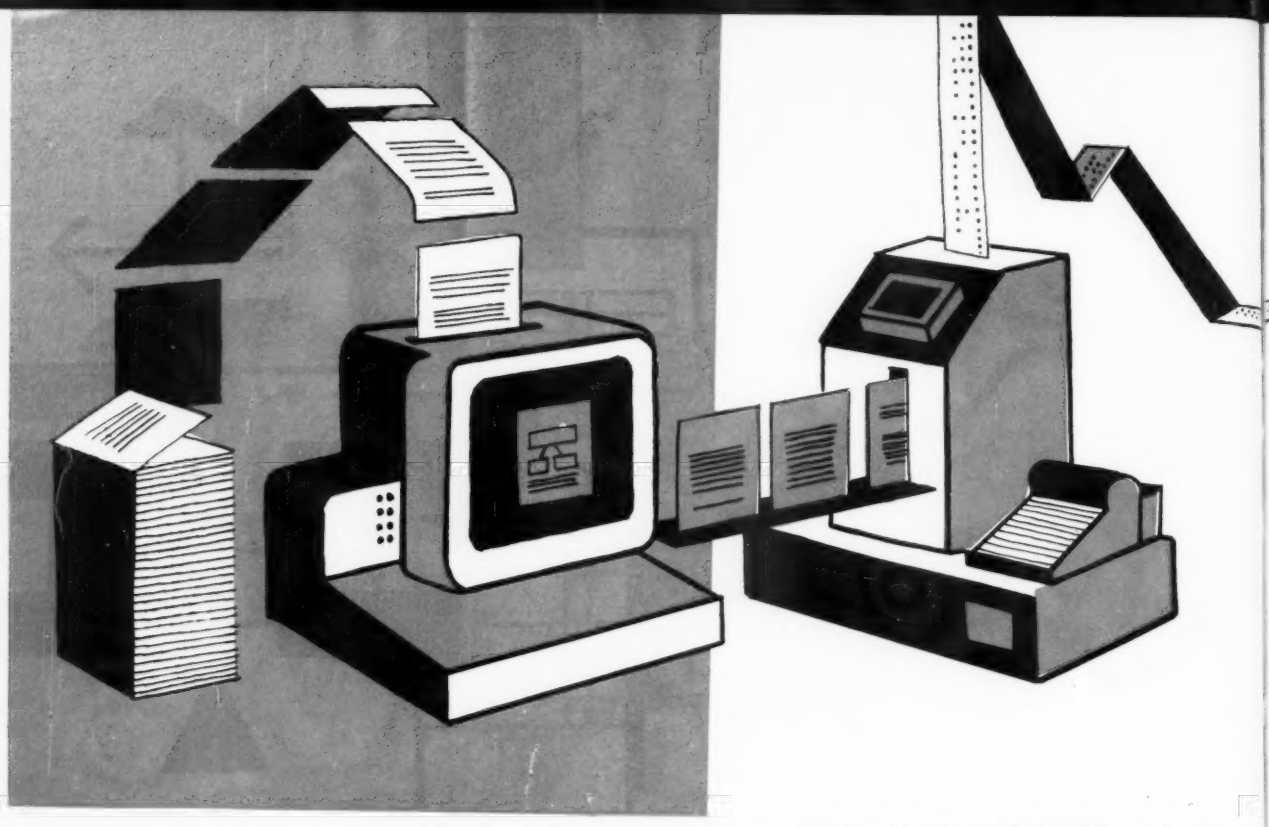
NEW CONCEPTS IN PRACTICAL OFFICE AUTOMATION

(Circle No. 45 on Reader Inquiry Card)



SYSTEMS DESIGN

Systems design, which once suggested something as remote as the mountains of the moon to the average company, is a working fact of life to thousands of American businesses today. It has to be. The effects of the new technology, the shrinking profit margin, make the methods that were good enough in more leisurely times perilous today. Some of the new concepts that are distinguishing the systems function are explored in this section.



Possible combination of optical scanner, computer "abstracting" of information, miniaturization of g

TODAY'S PLANS WILL SHAPE THE FUTURE

But past overspecialization in narrow areas has run counter to technological advances

By ROBERT SHIFF and ALAN NEGUS

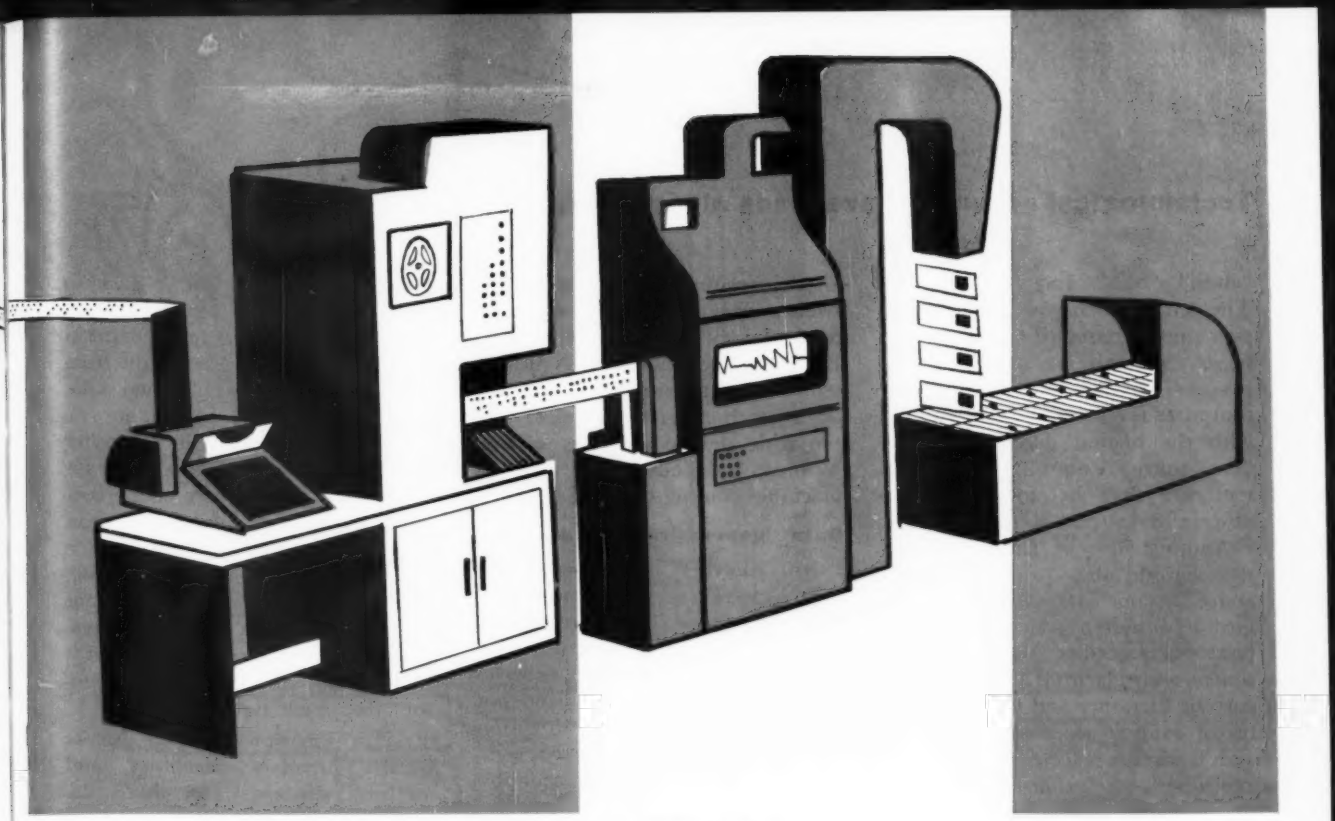
Naremco Services, Inc., New York

AS WE MOVE into the decade of the sixties, the dimension and scope of systems planning are changing. The fifties saw a great rise in interest in systems work because of a number of pressing influences. The paperwork burden was growing at such a rate that in many companies it had become intolerable. Shrinking profit margins and growing office overhead costs attracted the sharp eye of management. Then, too, the great surge in computer installations proved—after a few terribly expensive blunders—that computers could be more of a bane than a boon if they were simply installed on top of an existing system. It became clear that the system had to be streamlined and redesigned to take advantage of the abilities of the computer *before* the computer was installed.

So systems planning, a comparatively exotic profession before the fifties, became a standard rather than an exception during that comfortable decade. But what is its future today – where are we going from here?

We believe the concept of scientifically organizing work processes to gain the utmost in efficiency, economy, speed and accuracy—the systems planning concept—is moving into an entirely new dimension. In some ways this move is forced by the rapid technological advances that are changing the business picture so rapidly; in some ways it is made possible by these advances. We have talked for years about total systems planning – but by "total systems" we meant the system by which an office did its work, or a particular processing line. Today, when we speak of "total systems" we are beginning to refer to the way in which an entire company does its work; the manner in which every part functions in the whole. We are beginning to think in terms of total information systems, designed as a cohesive whole to serve every need of the company rather than merely the order billing cycle, inventory control, payroll, accounts payable. We have the potential—and the challenge—of designing a complete, automatic information system, rather than making improvements on bits and pieces of our information flows.

The machines to aid us in this work are beginning to appear. The fifties were the era of the data processors. These reduced—or at least made possible the reduction of – manual handling of bits of paper, and led us instead to centralized mechanical processing of information to give us the needed results.



of graphic images of abstracts, may be clue to complete information retrieval system.

The same machine abilities that allowed involved scientific and engineering problems to be solved relatively quickly made it possible for great masses of business data—day-to-day operating data—to be digested into meaningful information for control of the company's operations, even though the conversion of written information into machine language is in most situations still a bottleneck.

But even while these achievements—the conquest of some of the problems associated with handling and assimilating great masses of current repetitive data—were being solved in actual working installations, hardware was being developed to make possible mechanical handling of another great complex of information—the detailed, written, nonrepetitive information which a company must have to give it balance and perspective. Machines were developed in the field of information retrieval, where a whole complex of original facts, figures and graphics could be stored mechanically, so that it could be located and reproduced quickly whenever it was needed.

As with the early computers, government rather than business was the instigator of these new developments—but they can be of profound significance to business. Indeed, they *are* of profound significance, for as business becomes more and more involved in technical research and development programs, some mechanical aids to digestion, recording and retrieval of all sorts of basic information will become mandatory.

Soviet pressure increases need

This is particularly important now that the nation is engaged in such a grim race with Russia to achieve technological advances. The Russians start with one major advantage over us—their research is carried out under more or less unified direction, with duplication of effort kept to a minimum. Our economy has research teams in competitive companies working on the same problem. No one team can benefit by the progress made by another. The same situation—the same duplication—even exists in our defense agencies, with the Army, the Navy and the Air Force often working on precisely the same problems, and with no one service sharing the knowledge it gains with the others.

This extravagant approach offers some advantages in terms of final solutions. If three separate research groups are working on the same problem, the chances of a desirable solution to the problem being found are increased three times. But if each team knew that the others were working in the same area, if significant advances registered by one team were immediately placed at the disposal of the others, solutions to all our problems would be found much faster.

But assuming that the spirit were willing, there are still problems implicit in the great mass of technological information that must be searched and digested to find the facts pertinent to a particular problem. And here is where great advances have been made in the hardware that can aid humans.

IBM's H. Peter Luhn (inventor of the Luhn scanner) has devised a computer program to do what he terms "auto-abstracting," although we think a more accurate descriptive name would be "auto-extracting." The computer makes a statistical analysis of all significant words in an article, ignoring all the "ifs,"

Technological advances have made all information a unit, an entity

"ands," "buts" and "wherefores." The ten to twenty words that appear most frequently will usually serve very well for indexing purposes. The index completed, the computer then selects the sentences with the highest density of these "key" words. A compilation of these sentences then becomes the auto-abstract or extract of the article.

Another idea of Luhn's goes a step beyond the "business intelligence system." Its objective is to feed information selectively to the people who need it. An information center, with machine help, abstracts current literature and documents of broad interest to a business firm, and transmits selected portions to executives, researchers and operating personnel according to an individual "information interest profile" for each recipient. By merely pushing a button, the recipient can then call out the complete documents or visual image on a screen or as a hard copy. By simple feedback techniques, the "profile" can be continually revised to reflect changes of interest.

These things are all possible—but that doesn't mean for a moment that they have been fully implemented. If anything, we have lagged behind in applying the technology now available. It is easy to be carried away by the future and all it portends. But we can only shape our future by solving today's problems. We are just beginning to break through the problem of direct input to computers, by-passing manual key punch operations by means of optical scanning devices and the design of machine-sensible forms to capture data at the source. Although machine capacities and speeds to store and manipulate data steadily increase, our ability to develop methods of classification as the keystone to information retrieval lags far behind.

During the past two decades, systems mangagement as an organized discipline to manage paperwork and office operations has gained wide acceptance in industry and government. We have had twenty years to develop our present methodology and sophistication. But during this period how did systems management progress measure up to technological advances and the wide new possibilities offered by more judicious use of the new machines coming on the market?

Data "generalists" needed

Not too well. Today we have forms specialists, records retention and storage specialists, systems, data processing, information retrieval, correspondence, microfilm, archives and library specialists. We do not have people skilled in the direction of broad scale administrative services—we do not have information specialists, or information generalists, if you will. Yet, the whole impact of technological advances has been to make information, in any form, a unit, an entity which can be manipulated, stored, retrieved, and built upon mechanically. We have overspecialized at the precise time that specialization was becoming a handicap rather than an advantage.

As yet, the trend has not been reversed. We have failed to train, in the splintering process, administrators skilled in directing and coordinating the activities of the specialists.

But, though we may be somewhat late, we are not hopelessly late. For basically, the ideal of handling all information within a company as a single entity can only be fully achieved when we relate organization planning, system data processing, and information retrieval as integral parts of the total systems concept. Every company deals with two major classes of information, day-to-day operating information, which is of interest only as part of a cumulative total once it has been processed, and non-routine, subjective information which must be preserved either in its complete original state, or at least in a clear and sensible abstract.

This second type of information presents the problems we face in the area termed information retrieval. Actually we retrieve information of the first sort daily from computers as well. Our total sales figures for the last period, for instance, may be stored in computer memory, to be used as a basis for cumulative sales figures at the conclusion of the next period. But storage in the computer memory is basically for the computer's own use in updating records. We do not put information into a computer memory in order to retrieve it. We put it there for the computer's use in manipulating fresh figures.

So information retrieval *per se* usually involves machines and methods dissimilar to those developed for computer processing, although a computer may be used in combination with specially developed machines to build a highly sophisticated information retrieval system. Basically the problem of information retrieval involves the way men classify and relate ideas, the way they express themselves in language, and, ultimately, the way they think. Information retrieval today, in terms of hardware, is just about where electronic data processing was ten years ago. IBM estimates that industry is now spending about $2 million a year on information retrieval machine systems. By 1965, according to the same source, this expenditure will jump to over $100 million a year, and thereafter it will double every three years. Today, there are no completely satisfactory machines for retrieval of individual documents from large collections. By 1970, however, we can expect to see machines that are archival devices designed to store facts as well as texts. Human-to-machine and machine-to-human communications will become extremely important. And we will see information machines in as common use computers are today.

But let's just review some of the developments we already have today to see how far we've come in ma-

Already automatic retrieval devices make it possible to gain images of any stored records quickly.

chine developments even at this relatively early stage.

At the Rome Air Development Center at Griffis Air Force Base, a reading machine scans entire typewritten pages at the rate of 1,800 a minute and converts the typed text to signals on a punched tape that can be used to transmit complete text to a teleprinter at a distant point.

The potential applications of optical scanners are almost unlimited — from language translation to department store inventory control. But the scanner's greatest immediate promise lies in furnishing a previously missing mechanical link in both electronic data processing and information retrieval. Scanners can mechanically convert typed text and fixtures into direct input media acceptable to the computer, thus potentially freeing business of the laborious, expensive, and time-consuming clerical job of key punching information into either perforated tape or punched cards for computer input.

Atlantic City Electric Company's optical scanner translates information from bill stubs into computer language at the rate of 7200 stubs an hour. It would take 24 key punch operators to process that number in that time. The post office's new optical scanner will handle letters at a rate three times faster than the semi-automatic machines now being tested.

Considerable work is being done in graphic miniaturization, or photo-memory devices, such as Minicard, Magna Card, and new developments being offered by companies such as IBM and Itek. These devices attack the problem of information storage by reducing to uniform size and processing entire pages of text, graphic images such as engineering drawings, maps and photographs. These micro-reproductions are then tied into a coded index system which can be machine manipulated. With the development of optical scanning devices, and the steadily increasing capacity of data processing equipment memories, it appears that photo memory devices will be used primarily in processing of textual and graphic information rather than digital information.

But already, in just the devices mentioned, the alert information specialist can see the possibility of an integrated information handling system. With the data processor it is possible to manipulate daily routine information, update basic operating records, and make predictions based on past historical information stored within the computer, or entered into it. The data processor may also be used to extract automatically information from textual material. By means of optical scanning devices, such material can be read and edited by a computer into a short condensed abstract of the original material. This abstract, printed on the computer's output device, can then be circularized or routed to interested staff. The entire text in the meantime can be miniaturized by a photo-memory device. Finally, the location designation of the miniaturized record can be given a file classification or locater number by the computer. This classification in turn can be recorded in the computer's memory. At any future time when the information contained on a subject

THE BEST INVESTMENT WE EVER MADE

"We find that HURON COPYSETTE saves us hundreds of dollars in our stenographic department. At its new low price, HURON COPYSETTE costs us less than carbon paper and second sheets bought separately *and* it saves typing time! Because HURON COPYSETTE is a ready-to-type correspondence unit, our typists no longer lose valuable time collating and jogging second sheets and loose carbon.

Do as I did when I first read about HURON COPYSETTE in this magazine. Write them for free samples and their interesting brochure."

*PATENTED

Huron Copysette

PULL OUT Style

MANIFOLD CARBON PAPER SETS

(Address inquiries to Dept. L)

PORT HURON SULPHITE & PAPER CO. PORT HURON, MICH.

Available in Canada through APSCO PRODUCTS, LTD., Toronto, Canada

*Licensed under Kerr Patent No. 2,557,875

INSIST ON THE FINEST . . . ASK FOR HURON COPYSETTE BY NAME

(Circle No. 41 on Reader Inquiry Card)

is needed, the computer can be queried for the file numbers of all the records pertaining to that particular subject. High speed selection devices can then produce a graphic image of the needed image within seconds.

Thus, a computer might be queried for all information bearing on a certain technical process in metallurgy, for example. The computer translates the generalized request into the specific file numbers stored in its memory for all articles dealing with metallurgy that have been abstracted and photo-recorded. Within minutes, either a complete set of abstracts is available or images of the documents themselves.

Countrywide distribution

Moreover, such reproductions, either in the form of visual display or hard copies, can be transmitted from a central information division to a company location anywhere in the country. If relatively brief reference is all that is required, closed circuit television can project an image to a remote location. If the image is going to be required for some time, facsimile transmissions can produce a permanent hard copy of the required document or record anywhere it is needed.

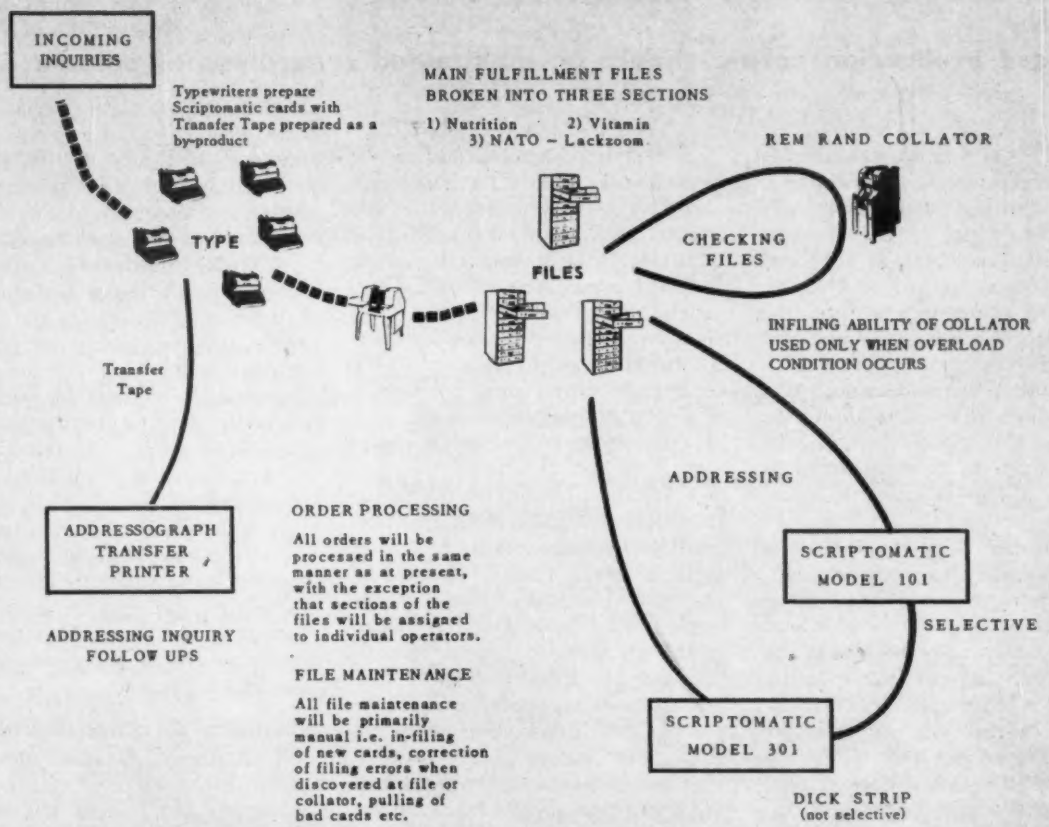
All these thing are possible now — and serve to emphasize why we are beginning to be able to think of information as an entity rather than as parallel and separate streams of paperwork. An office actually exists to process information. It has traditionally done that through the medium of paper, because paper was the only major information medium. The office had some traditional duties and obligations, and the factory others. Their point of contact again was information, with paper forming the link between the area which handled orders, correspondence, sales and planning, and the production area, which actually made the goods. Production, too, had to have its own paperwork lines — specification sheets, shop orders, time records, production schedules.

But now, with the new mechanical aids available, the whole picture has changed. All information, for every company need, can be stored mechanically, and extracted when it is needed at high speed. Moreover, since it is profitable to handle information as rapidly as possible, it is best to let the central complex cover all the information needs created by any given situation. If a large order comes in, the same machine that produces the accounting records and shipping papers needed for the order, the central data processor, can also issue warehouse orders, deplete the inventory records to account for the shipment, issue production orders to re-stock the inventory, and also schedule production and call out tools and raw materials for the new production run. It not only can do all these things, it can do them much better than can a whole complex of different departments, each of which goes into action only as the result of some previous department's work.

In production terms, our new information machines make it possible to handle the processing and use of information as a continuous flow system. Previously, we were forced to handle information on an assembly line basis. One stage of work had to be completed on each bit of information before the next use could be made of it. Actually, the offices and factories that ever achieved good "assembly line" progress were, as we know, few and far between. The concept of information as a commodity, a raw material that could be handled and processed into an end product, was too sophisticated for many concerns.

But now, we've skipped a whole intermediate stage. We have arrived at the possibility of bypassing the assembly line, with its constant breaks in progress, altogether, and moving over directly into meeting all our information processing and storage needs in one continuous operation at one central point.

The intelligence with which we meet the challenge is the only question remaining. We know what the challenge will be. And that's the assignment for systems people in the years ahead — making the total systems concept a reality.


INCOMING INQUIRIES
Typewriters prepare Scriptomatic cards with Transfer Tape prepared as a by-product
MAIN FULFILLMENT FILES BROKEN INTO THREE SECTIONS
1) Nutrition 2) Vitamin
3) NATO – Lackzoom
REM RAND COLLATOR
TYPE
FILES
CHECKING FILES
INFILING ABILITY OF COLLATOR USED ONLY WHEN OVERLOAD CONDITION OCCURS
Transfer Tape
ADDRESSING
ADDRESSOGRAPH TRANSFER PRINTER
ORDER PROCESSING
All orders will be processed in the same manner as at present, with the exception that sections of the files will be assigned to individual operators.
SCRIPTOMATIC MODEL 101
SELECTIVE
ADDRESSING INQUIRY FOLLOW UPS
FILE MAINTENANCE
All file maintenance will be primarily manual i.e. in-filing of new cards, correction of filing errors when discovered at file or collator, pulling of bad cards etc.
SCRIPTOMATIC MODEL 301
DICK STRIP (not selective)

Flow chart illustrates new fulfillment system devised for General Nutrition Company

GOOD SYSTEMS DESIGN FOR THE SMALL OFFICE EQUALS LOWER OPERATING COSTS

By GERALD MURPHY
Vice president, Fairbanks Associates, Inc., New York, Member, ACME

TOO MANY SMALL companies today, bewildered and awed by the rapid technological advances occurring in the office, shy away from systems design and revision because it implies to them a vast, expensive, time-consuming process, which cannot give results commensurate with the company's efforts.

This is a fallacy. Not only is design of an efficient and effective system economically feasible for a small company; in many ways, it is mandatory. Most small companies have less fat and fewer reserves than their giant counterparts. They must gain competitive advantage by flexible, quick service, and low internal operating costs. And this means they must have a well-planned system which accomplishes its goals quickly, accurately, and at minimum cost.

Systems revision does not mean heavy mechanization where it is not called for; it may even call for a switch from mechanical to manual methods of performing some operations. It does mean analysis of a problem, the establishment of certain clear goals, and then the creation of a plan to achieve those goals in the most direct way possible. It requires observation, experience, and the ability to weigh realistically the advantages to be gained through any expenditure against cost. Last, and perhaps most important of all, it demands objectivity and common sense.

A good example of what overall systems revision can mean to a small company is offered by the recent redesign of the promotion and order fulfillment operation of the General Nutrition Company in Pittsburgh. General Nutrition, though a small concern, is one of the major companies in the health food field that sells directly to consumers on a mail order basis. Customer enquiries are stimulated by television spots, mainly on daytime shows. Whenever a person writes in to the company to inquire about the prod-

Standard production norms should be maintained regardless of volume

uct it offers, a Scriptomatic card is created and punched with his name, address, and the particular type of products in which he is interested. This card serves both as a permanent customer record and as an automatic addressing medium for mail orders or promotional material sent to the customer.

Since the company does not make the products it markets under its name, but rather buys them directly from manufacturers, the heart of its business is the fulfillment operation.

A fulfillment department has one main function: to provide high-quality, low-cost service at all times regardless of volume conditions. This is a difficult task because of the extreme variations of volume in the mail order business where the slow period (in this case the summer months) represents only 30 to 40 per cent of the peak season volume. Thus, to successfully operate a fulfillment department, there must be a constant series of adjustments and decisions. Lacking these decisions, control and efficiency would be lost.

Thus, the following principles are applicable to the general direction of a fulfillment operation:

1. The department should not be permanently staffed for maximum capacity, but it is necessary that machinery and personnel capability be available to meet maximum loads.

2. All procedures should be regularly examined for their effect upon preceding and following operations. It is not satisfactory simply to change a procedure to meet a situation without examining the total effect of the change on all operations.

3. Standard production norms for personnel should be maintained regardless of volume conditions (either high or low). This is essential to maintain personnel efficiency. If norms are not maintained, the work force will tend to become lax in operation, and then it will be very difficult to bring production back to par when high volume demands are made.

4. Because of the constantly changing nature of a fulfillment operation, it is necessary to have alternative means available to meet unforeseen emergencies, such as an excessive volume of inquiries. This is necessary to prevent any possible backlogs from building up in the department when volume is much higher than has been anticipated.

5. Production and performance figures are necessary to the efficient operation of the department.

6. Order fulfillment is a matter of coordination between mail opening, validation, fulfillment and warehouse. It is therefore necessary when scheduling this operation to ensure a complete flow from the receipt of an order through its final processing. This can be maintained only by a continuous evaluation of all processing areas.

7. Temporary workers employed on a sporadic basis are more expensive, because they are less efficient than a regular pool of permanent part-time workers. Therefore, a steady source of part-time workers should be assured.

Typists create Scriptomatic cards for each prospect.

Similarity to manufacturing

A fulfillment operation—the keeping of lists—both to process individual orders and to send out promotional material in mass mailings—is a peculiar operation, which at many points has more resemblance to light manufacturing than a clerical work process. However, the type of personnel employed must have the clerical abilities. They must be accurate in typing, sorting, and filing. The standards and values of the workers most desirable for such an operation must be meshed with the processing steps best suited to the operation itself. Thus, the systems man planning a revised work pattern for a fulfillment department must consider problems of attractive layout as well as efficient motions. He must take prestige and pride factors into account when making his recommendations.

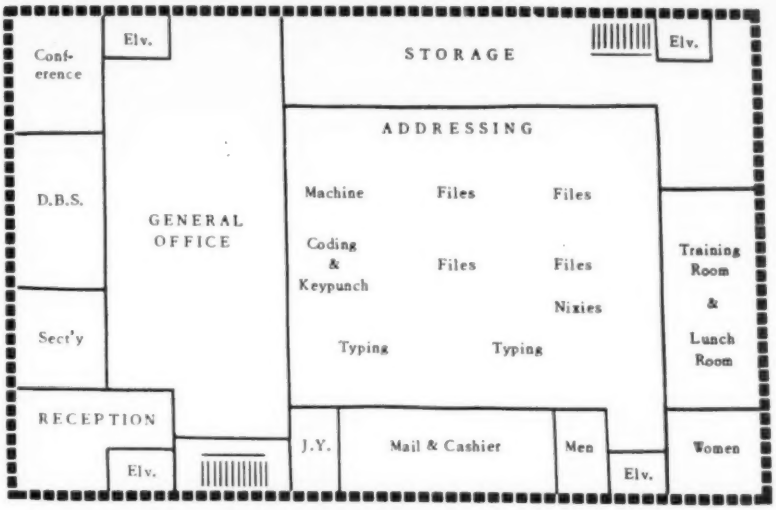
At General Nutrition, the systems revision had two phases: general changes in order to make the basic work pattern itself far more efficient, and also institution of measures designed to meet and control the changing nature of the work flow without undue expense.

A survey of the company's mailings over a five-month period showed one major point at which trouble was developing repeatedly. As inquiries came in following each tele-

vision commercial, a Scriptomatic punched card record was immediately made for each prospect. This card was then used to address four successive promotion mailings to the prospect over a sixty-day period before it was placed in the main file, where it could serve for the mailing of future orders and also for periodic mass promotional mailings.

Thus, all pertinent information on a potential customer was recorded in only one place — the Scriptomatic card. That card was not infiled until several weeks after its creation. As a result, card records for many customers could not be located when an order came in, making it necessary to make a complete new card, with resulting duplication of work.

This was one difficulty in the old procedure. Another came in the mailing department itself. All customers' names were kept in one main file. But the company was marketing under two major and two minor names, and though there was some duplication of names, many of the customers for one type of product were quite unlikely prospects for either of the other three groups. So whenever a general promotion mailing was made for any given group of products, it was necessary to run the entire list of cards through a Scriptomatic 101 machine, which could automatically select the desired group of customers and print labels for just the selected group.



New layout permits straight workflow, from mail to typing to infiling.

This placed such a heavy load on the addressing machine and caused the mailing department to fall so far behind in its work that it was perfectly obvious that a new addressing unit would have to be purchased soon.

Last of all, a Remington-Rand collator was being used to infile new cards into the main file, but the proportion of new cards added each day to the total number of cards in the file made such mechanical methods dubious. The collator had to run through an entire file of half a million cards in order to infile just a few thousand new ones.

These then were the basic problem areas under the old General Nutrition system:

Delay and confusion resulting from a high percentage of "not found" orders. A heavy load on the mailing department because of a list

Overall view of the fulfillment department as it was before new layout was created.

Problem solved by creating more than one record for each prospect

operation, and the necessity of using addressing equipment which offered the selective feature, but which was not as fast as other Scriptomatic equipment which did not distinguish between different categories of customers. And last, mechanization of a filing process, which in terms of proportion of new infiles to total card records could be handled faster manually. There were many other areas covered in the original system survey, and redesigned in the systems revision, but these were the main problem areas.

And they were serious ones. The only advantage which a company like General Nutrition can offer its customers is a price difference – he can buy vitamins and health products more cheaply by mail than he can at his local drug store. If the price advantage is offset by delays in receiving the products he has ordered, the customer very soon loses interest and returns to the druggist.

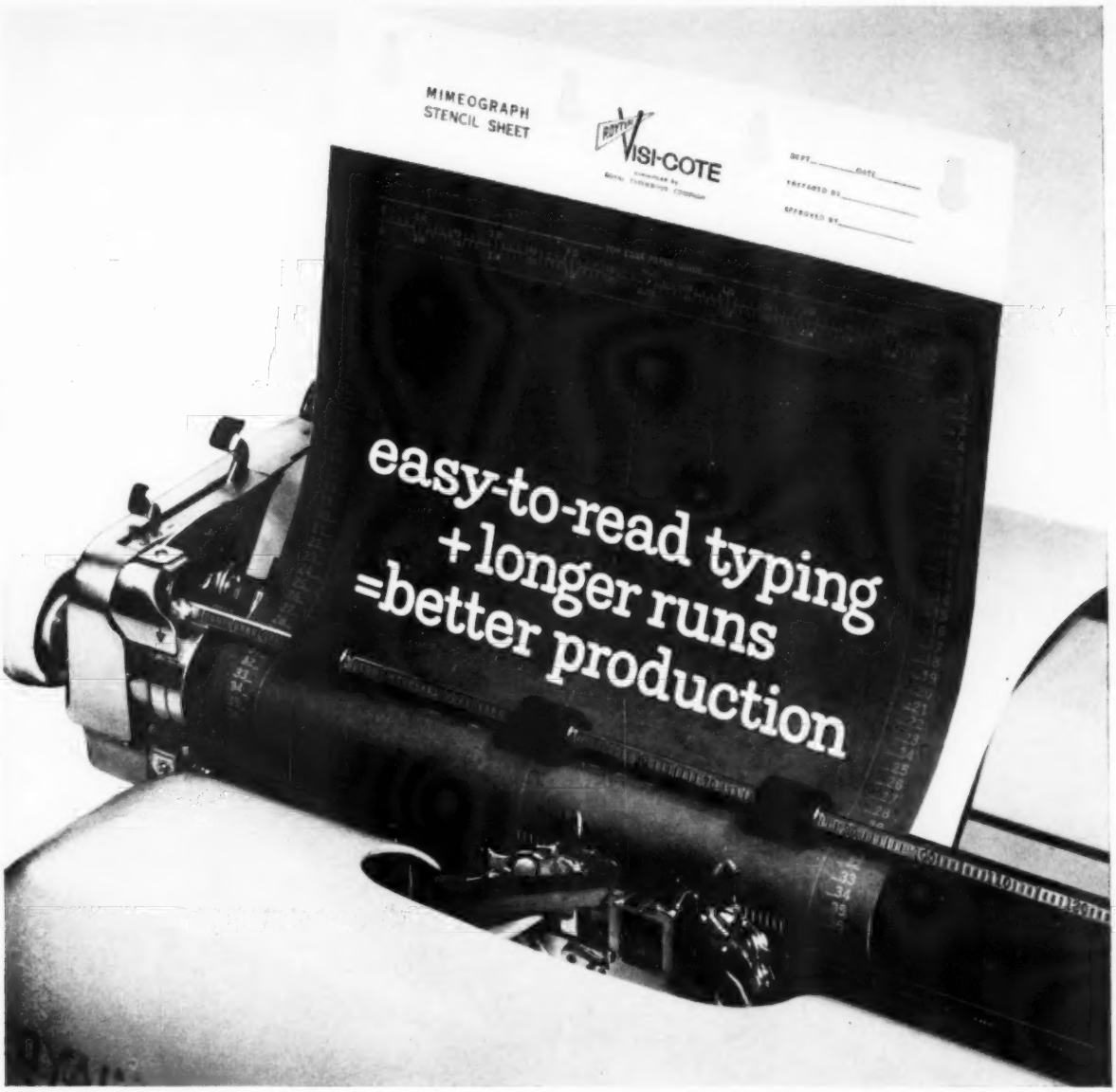
Let's see what steps could be – and were–taken to solve the two major problems of loss of customer records before the individual cards were filed, and successive bottlenecks in the mailing department. Obviously, if a card could be created as soon as an enquiry was received from a customer, and immediately infiled, the "not found" problem in sales order processing would be alleviated. But in order to turn an enquirer into a customer, promotional efforts had to be made. Thus, each potential customer should receive at least four promotional mailings before the only record of his name, address, and product interest was filed.

This problem was solved by creating more than one record for each potential customer. Scriptomatic cards were still created for each inquiry in the usual way, but by backing up Scriptomatic carbon with heat transfer carbon, we then had a medium which could be used to create four mailing labels – one for each promotional mailing in the first series. Thus, the Scriptomatic card created could be immediately put into file; the continuous tape created as a byproduct of the Scriptomatic typing was the medium used for the first four mailings. The confusion caused by orders coming in which could not be matched against address cards in the main files was eliminated.

In other words, the Scriptomatic cards, under the old system, served two separate and distinct purposes, the mailing of the first four promotion efforts, and the order processing function when an order was actually received. By capturing incoming information simultaneously on two different media when it was first received, it was possible for the Scriptomatic card to be immediately placed in file. Therefore the basic card was immediately available for mailing of actual orders, as distinct from mailing of timed promotion

(*To page* 126)

Manual in-filing of new cards proved more efficient than automatic methods



NEW ROYTYPE VISI-COTE STENCIL

New Roytype VISI-COTE Stencil eliminates eyestrain. All typing stands out with remarkable clarity. It can be read and proofread without squinting or holding up to the light.

Roytype VISI-COTE has extra strength for heavy duty. Sturdy plastic coating minimizes filling in type with wax—reduces time lost for cleaning of type. Typists also save time making corrections, because no pliofilm sheet is needed.

Roytype VISI-COTE's new wet-strength base tissue takes the place of the ordinary cushion sheet. Gives you longer runs and clearer, sharper copies.

Your Roytype Representative can show you how your office production can profit with VISI-COTE. Why not call him? For a FREE sample, mail the coupon.

ROYTYPE® *A complete line of business supplies . . . expert help . . . and the fastest service, too.*

(Circle No. 47 on Reader Inquiry Card)

161J

ROYTYPE, Royal McBee Corporation
Westchester Ave., Port Chester, N. Y.

Please have your ROYTYPE Representative bring me a Free Sample of your VISICOTE Stencil.

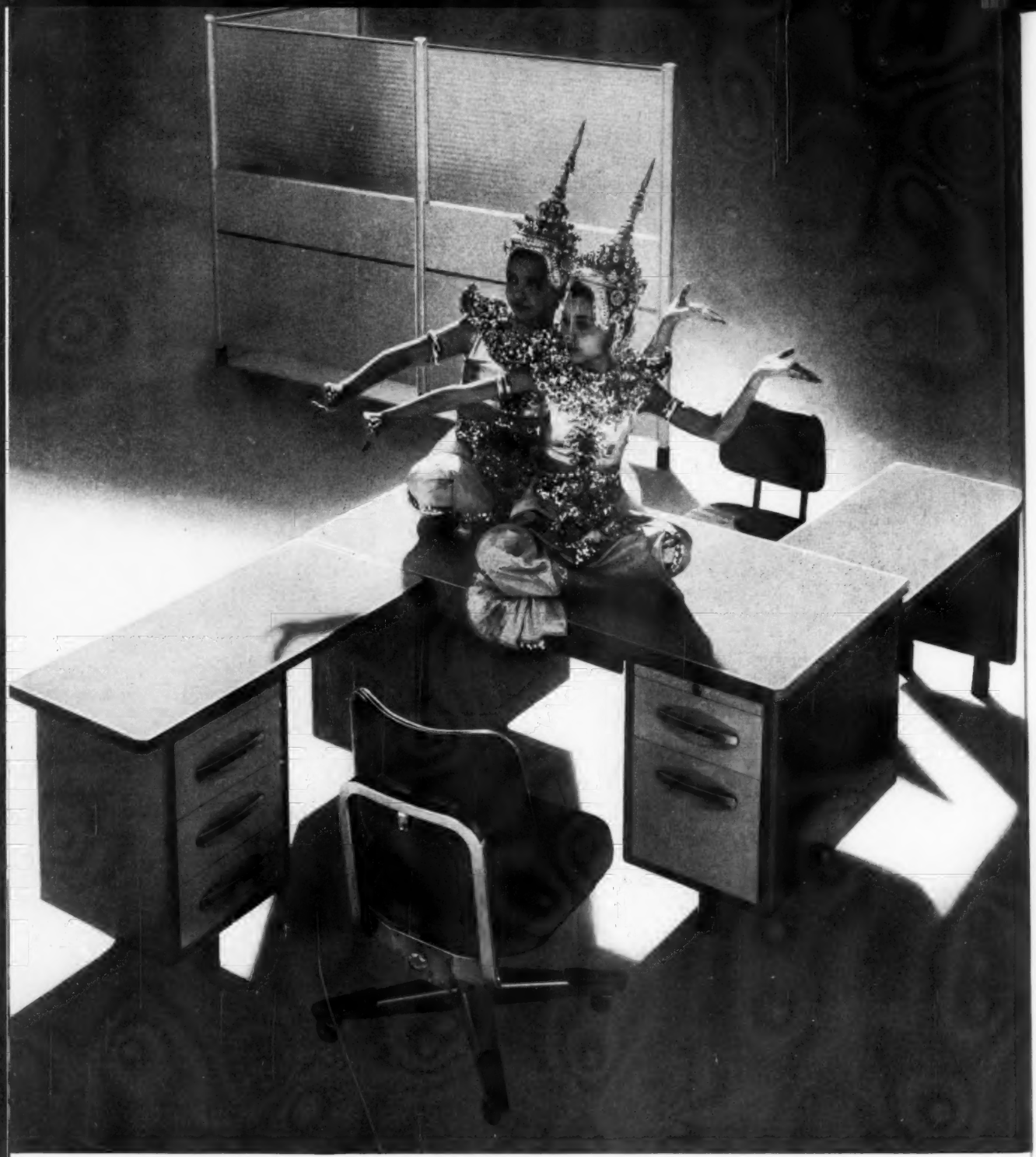
Name_____

Title_____

Company_____

Address_____

City_____ Zone____ State____



Shown here: our #1209 secretarial posture model. Comfort enough to help one think—and work!

DOUBLE the action in any office space...

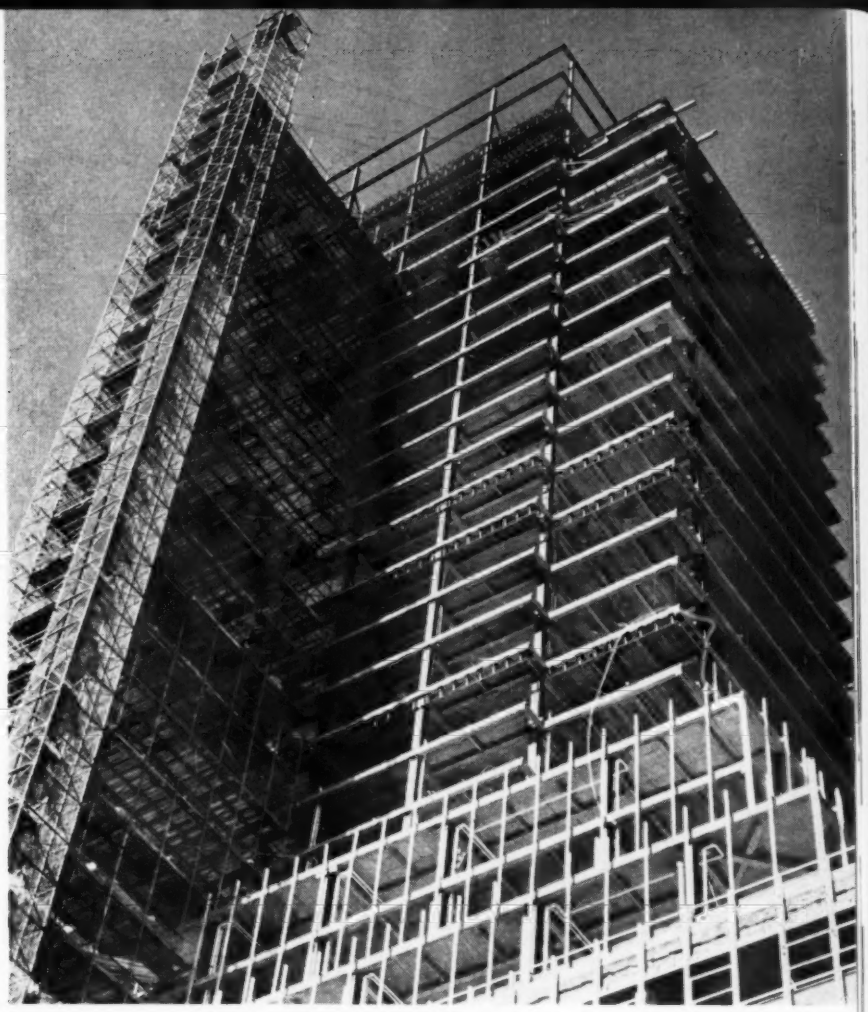
Only Royal gives you such flexibility, such completeness, such comfort!

Now! The makers of Royal chairs want you to meet their newest magic: Arnot modular furniture components and Partition-ettes®—designed and engineered to overcome every handicap that office space planning can offer. Arrange them—rearrange them—only greater efficiency can result! For the finishing touch—chairs by Royal, of course. Write today for more information showing the galaxy of styles, sizes and colors available. ROYAL METAL MANUFACTURING COMPANY, Dept. 6 A, One Park Avenue, N.Y. 16, N.Y. In Canada—Galt, Ontario.

SHOWROOMS: New York, Chicago, Los Angeles, San Francisco, Seattle, Galt, Ontario
LICENSEES: France, England, Australia, Venezuela • FACTORIES: Plainfield, Conn., Michigan City, Ind., Los Angeles, Cal., Warren, Pa., Jamestown, N.Y., Galt and Smiths Falls, Ontario

Royal
OFFICE FURNITURE

(Circle No. 7 on Reader Inquiry C



OFFICE DESIGN

New office buildings soaring to the sky, the architectural innovations of the post-war period, the application of office planning principles utilized in New York to offices throughout the nation, the integration of "the office" into the total corporate personality—all mark an era of office design in which money spent on functional offices is money wisely spent.

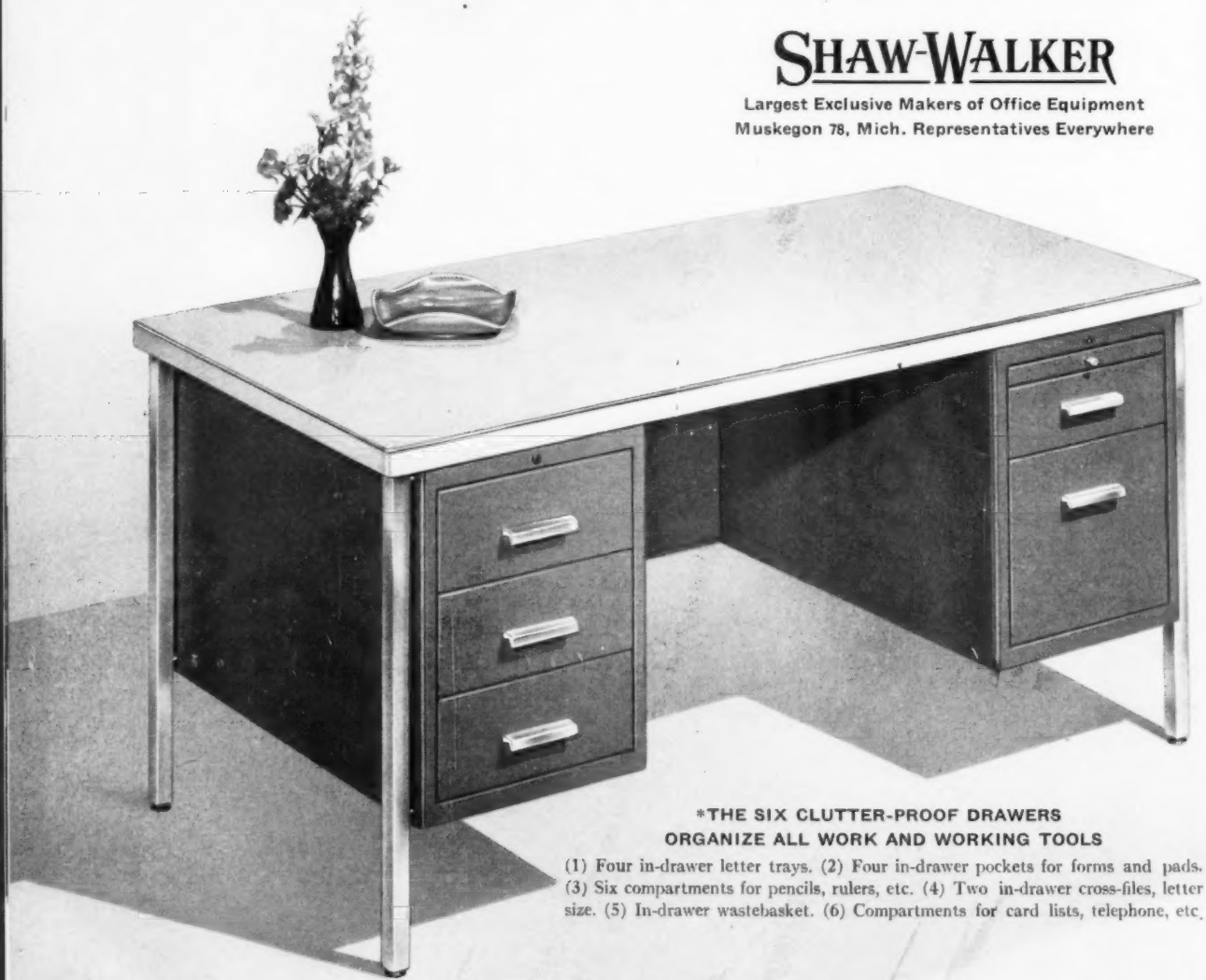
Beauty with "brains" in new clutter-proof desk

THE NEW Shaw-Walker Skyline Desk has an ingenious arrangement of six *clutter-proof** drawers that really helps the office worker do more—easier . . . Makes an amazing improvement in neatness and efficiency.

Your Shaw-Walkerman can show you how Skyline furniture will bring both new beauty and greater work accomplishment to *your office.* You will find him listed in the phone book. Or, write for our colorful new brochure, "Skyline Clutter-Proof® Desks."

SHAW-WALKER

Largest Exclusive Makers of Office Equipment
Muskegon 78, Mich. Representatives Everywhere



***THE SIX CLUTTER-PROOF DRAWERS ORGANIZE ALL WORK AND WORKING TOOLS**

(1) Four in-drawer letter trays. (2) Four in-drawer pockets for forms and pads. (3) Six compartments for pencils, rulers, etc. (4) Two in-drawer cross-files, letter size. (5) In-drawer wastebasket. (6) Compartments for card lists, telephone, etc.

Annual "Office of the Year" awards have served to make the fifties a . . .

DECADE OF PROGRESS IN OFFICE PLANNING

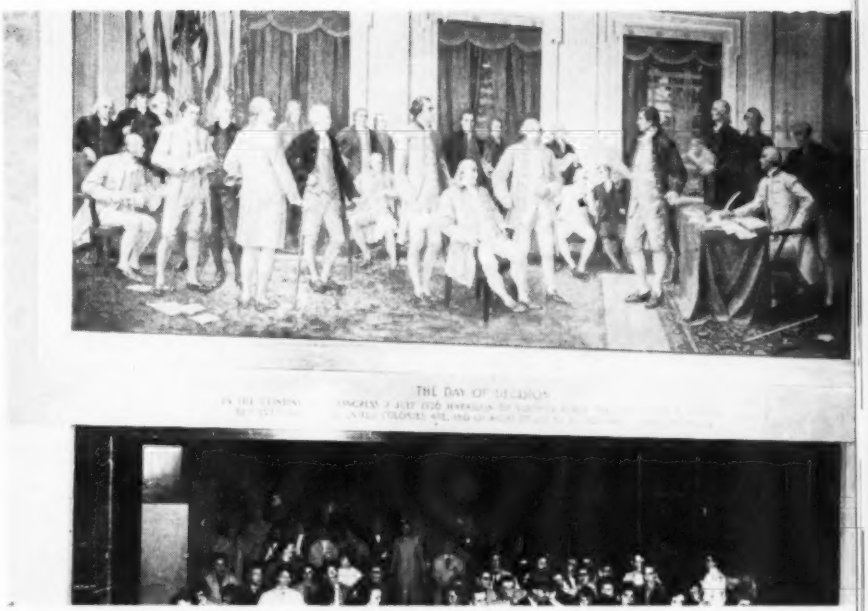
By JOHN ALLAN RHEA

SIXTY distinguished offices constructed during the past decade constitute a vanguard of post-war American architecture. These are the buildings honored by "Office of the Year" awards from *Office Management and American Business* since 1950.

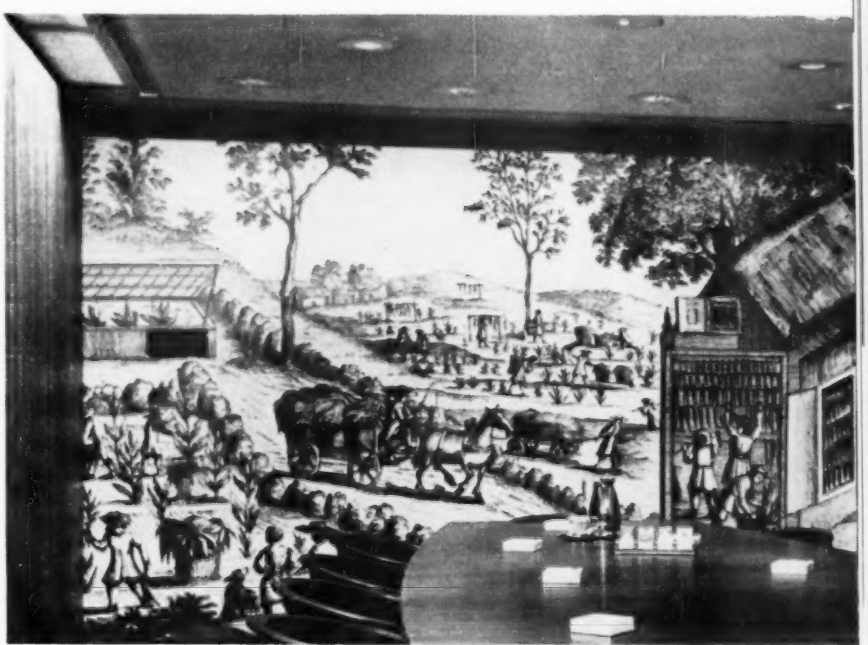
The offices are dispersed throughout the United States—from New York City to East Peoria, Ill., to Hollywood, Calif. Although the mammoth "clerical factories" of insurance companies and banks understandably dominate the list—financial institutions comprise one-third of the award winners—diversity of function is as common as dispersal of location. Manufacturing firms, financial institutions, sales organizations, advertising agencies, a railroad, labor union, trade association, newspaper, and management consultant are among the winners. This list extends into every business activity in which the office plays an important role.

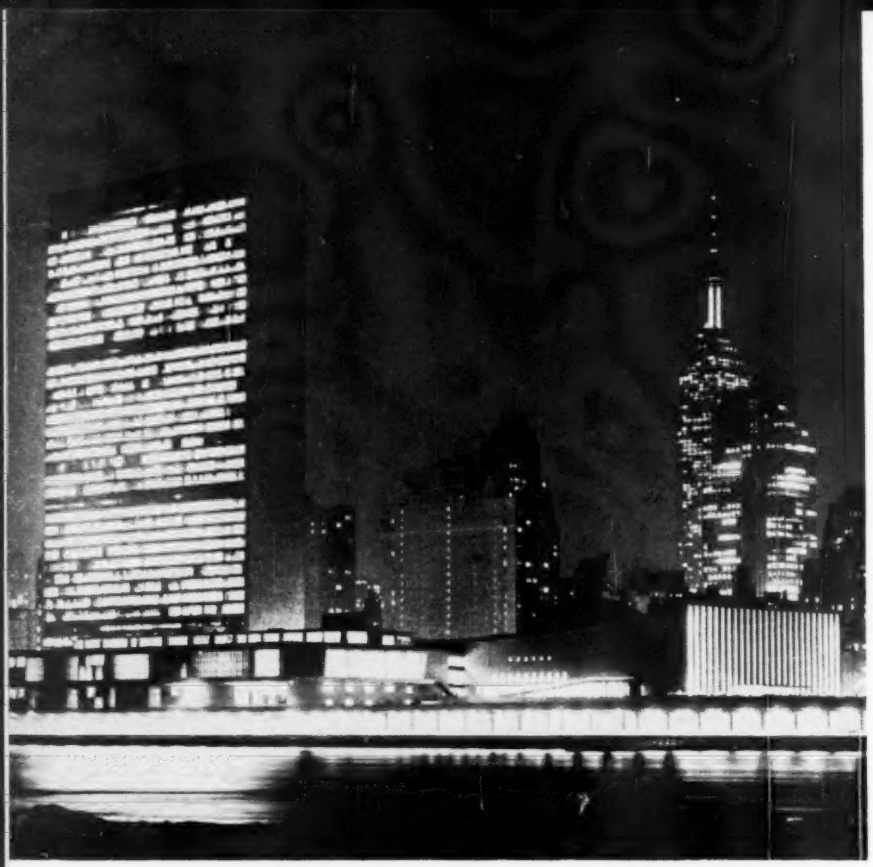
The winners are equally diverse in their architectural execution. Connecticut General's home office sprawls over its pastoral setting in the Connecticut countryside. The graceful Lever and Seagram buildings face each other in the upper strata above New York's sparkling Park Avenue. Nearby, the United Nations Secretariat faces the world across the East River, a symbol of peace in a time of peril. Ford's administrative building is fitted to its suburban Detroit environment, just as Prudential's Mid-America Home Office is to the Chicago skyline. The headquarters of both U. S. Steel and Aluminum Company of America, which look across Pittsburgh's "Golden Triangle," are constant advertisements for the metals from which they were constructed.

Out of this diversity come the

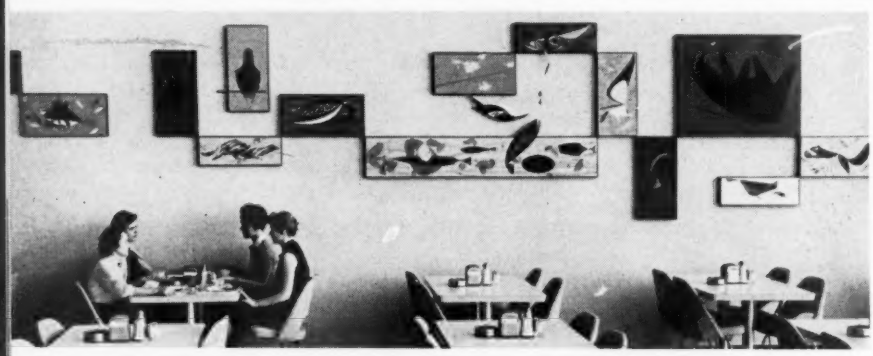


"Resolved, that these united colonies are, and of right ought to be, free and independent states," reads the inscription over the entrance of 1950 large office winner John Hancock Mutual Insurance Co., Boston (above). Also drawing from the American tradition is the board room of 1950 small office winner Philip Morris & Co., Ltd., New York (below) with its mural of tobacco harvesting in Colonial times.





Crisis in the Congo, or anywhere else in the world, is dramatized by lights burning into the night at the United Nations Secretariat, 1951 large office winner.



Tastful use of art characterizes many award winners. Cafeteria of Ford Motor Co. (above) features scenes of Michigan wildlife created by Charles Harper. Meeting room in House of Seagram (below) is representative of modern art used throughout.

elements which made 60 buildings *the* offices of their respective years. These elements are the buildings' qualities of timelessness and originality. The truly great office of any year does not lose its modernity, its utility, or its beauty in succeeding years. And it becomes the model for next year's crop of office buildings.

To recognize these buildings, Geyer-McAllister Publications established the "Office of the Year" awards in 1950. These awards were initiated to mark the tenth anniversary of *Office Management and Equipment,* predecessor of *Office Mangement and American Business.* The June 1950 issue of that magazine set forth the objectives of the annual competition: "Since the office is the frame in which office work is carried on, it is of the utmost importance to office management that these physical aspects of it be emphasized which fit the office to the changing demands of the passing years, and it is anticipated that *Office Management and Equipment's* annual "Office of the Year" awards will serve to turn the spotlight on offices which have in this respect most skillfully met the challenge of the times."

The same issue also emphasized the future role that the office was expected to play 10 years ago — a role that it has subsequently played and undoubtedly will continue to play in even greater measure: "From a concept of the office as a necessary evil, to be operated as parsimoniously as possible, management has come in the intervening years since post-Civil War days to see the office in its true light as the great center of direction, planning, and control of practically every form of human endeavor."

On Oct. 23, 1950, at the National Business Show in New York, the first two "Office of the Year" award winners received plaques designed by Bernard Brussel-Smith and interpreted in bronze by sculptor Carl Schmitz. The competition was limited to offices constructed during the past year and was divided into two categories: offices employing more than 500 persons, and those employing 500 or less. In addition to the award winners, two other office buildings in each category

"Office of the Year" cross section

captured honorable mention certificates.

Winner in the large office category, John Hancock Mutual Life Insurance Co., Boston, was cited for "tying together the best of the past and the present," and was called "a monumental office structure symbolizing the progressive conservatism of New England." Some of the building's features were rare at the time but were later to become integral to office design. These included large open floor areas (48 by 250 feet), built-in fluorescent lighting, casement cloth curtains, vertical mail conveying system, air conditioning, piped-in music, radiant heat, dining and recreation areas, a library, cooperative store, and auditorium.

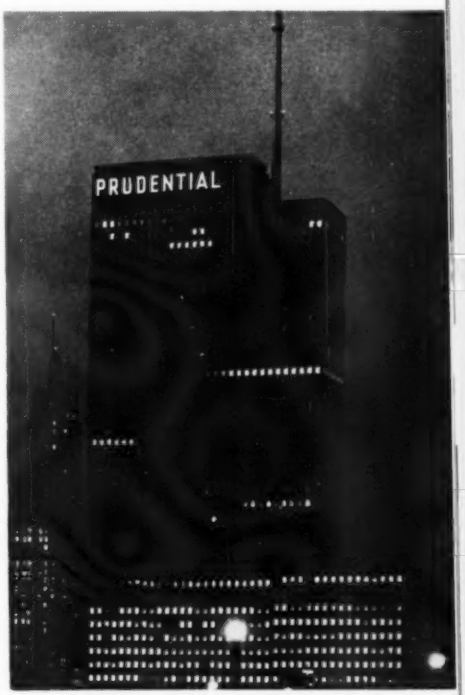
The small office winner in 1950 was the 100 Park Avenue headquarters of Philip Morris & Co., Ltd. This office, which was praised for "skillful utilization of big-city office building space for the highly functional yet vibrantly impressive headquarters of a great national advertiser," looks as modern today as it did then. Several innovations marked the Philip Morris headquarters as the beginning of an era in office design. The number of private offices was drastically slashed so that only the chairman, president, and a few other top corporate officers had them. All other executives worked in open areas with their secretaries and aides, in what the company called "a visible application of teamwork."

The conference room at Philip Morris was a pace setter in that an eight-foot-wide coffee table replaced the almost ubiquitous massive conference table. (Another then novel feature of that conference room has attached itself more firmly to American society: a television set.) A full-time nurse was provided to minister to minor medical needs of employees.

A giant among office buildings is the 39-story United Nations Secretariat Building, working quarters for more than 3,000 office employees from every part of the world. The $22 million structure is a symbol of man's efforts to attain world peace and a pioneer among office buildings. Constructed on a site of only 18 acres, the Secretariat is tall and narrow so that its interior receives a maximum of natural light. An outstanding feature of this 1951 "Office of the Year" award winner is its individual temperature controls that permit office workers from many countries to "tune in" the temperature they desire.

1952 award winner, in the large office category, started the stampede to New York's upper Park Avenue. Lever House was the first of the glass encased towers that have made that street the administrative headquarters to the nation. Of special interest is the building's open first floor, where a weeping willow tree

Ford's Dearborn offices, 1956 winner, have been called a "horizontal version of the UN."



"The Rock," as Chicagoans call this 1955 winner, symbolizes Prudential's solidarity.

A weeping willow tree lends warmth to the plaza of Lever House (below), 1952 winner and pioneer along New York's Park Avenue.

in a landscaped patio relieves the building's angular lines. The tree also brings a bit of greenery to the heart of a great and impersonal city, just as the famous tree that grew in Brooklyn brought warmth to its drab surroundings.

Lever House was soon joined by other corporate fortresses along Park Avenue. "Office of the Year" award winners Colgate-Palmolive (1956) and Joseph E. Seagram & Sons, Inc. (1958) were part of a large-scale emigration to the avenue. Colgate-Palmolive celebrated its 150th anniversary by reversing the trend of decentralization and moving from Jersey City, N. J., to the 24-story aluminum and glass tower. The 38-story House of Seagram is the product of some of the most high-powered talent ever employed on an office building – among them the noted Chicago architect Ludwig Mies van der Rohe and French abstractionist Joan Miro, who was commissioned to do original paintings for the building.

In Dearborn, Mich., Ford Motor Company's administrative offices dominate a 90-acre landscaped site nine miles from downtown Detroit. A horizontal version of the United Nations Secretariat, the 12-story structure typifies the "glass envelope" architecture being adopted throughout the country. Luminous ceilings supplement the abundant natural lighting of this 1956 winner.

One of the "clerical factories" among the award winners, Connecticut General Life Insurance Co. in 1957, has set the pace for the construction of suburban office buildings. Low and rambling, the building was specifically designed for efficient movement and processing of paperwork. In addition, it provides the flexibility for expansion needed in a growth industry such as insurance.

These offices are but a cross section of the 60 award winners that appeared on the pages of *Office Management and American Business* during the past decade. The 60 winners, in turn, comprise only a small percentage of the office buildings constructed since World War II. That so many offices, of such high quality, should be constructed in this period is a visible tribute to the supremacy of the administrative function in American industry.

HONOR ROLE OF AMERICAN OFFICES

More than 500 employees:

1950

OFFICE OF THE YEAR
John Hancock Mutual Insurance Co., Boston

AWARDS OF MERIT
General Petroleum Co., Inc., Los Angeles
Mutual Life Insurance Co., New York

1951

OFFICE OF THE YEAR
United Nations Secretariat, New York

AWARDS OF MERIT
Dun & Bradstreet, Inc., New York
Farm Bureau Insurance Companies, Columbus, Ohio

1952

OFFICE OF THE YEAR
Lever House, New York

AWARDS OF MERIT
Southwestern Home Office, Prudential Life Insurance Co., Houston, Tex.
U. S. Steel Corp., Pittsburgh

1953

OFFICE OF THE YEAR
Aluminum Co. of America, Pittsburgh

AWARDS OF MERIT
Louviers offices of E. I. du Pont de Nemours & Co., Newark, Dela.
The Texas Co., New Orleans

1954

OFFICE OF THE YEAR
General Foods Corp., White Plains, N. Y.

AWARDS OF MERIT
Celanese Corp. of America offices at Charlotte, N. C.
Utica Mutual Insurance Co. offices at New Hartford, N. Y.

1955

OFFICE OF THE YEAR
Mid-America Home Office, Prudential Insurance Co. of America, Chicago

AWARDS OF MERIT
Atlas Powder Co., Wilmington, Dela.
Republic National Bank of Dallas, Tex.

More than 300 employees:

1956

OFFICE OF THE YEAR
Standard Vacuum Oil Co., White Plains, N. Y.

AWARDS OF MERIT
Colgate-Palmolive Co., New York
Ford Motor Co., Dearborn, Mich.

1957

OFFICE OF THE YEAR
Mutual Benefit Life Insurance, Newark

AWARDS OF MERIT
Connecticut General Life Insurance Co., Hartford, Conn.
Gulf Oil Corp., Sales Div., Philadelphia

1958

OFFICE OF THE YEAR
Joseph E. Seagram, New York

AWARDS OF MERIT
International Minerals and Chemical Corp., Skokie, Ill.
Eastman Kodak Co., Rochester, N. Y.

1959

OFFICE OF THE YEAR
Southland Life Insurance Co., Dallas

AWARDS OF MERIT
Berkshire Life Insurance Co., Pittsfield, Mass.
Crown Zellerbach Corp., San Francisco

Up to 500 employees:

OFFICE OF THE YEAR
Philip Morris & Co., Ltd., New York

AWARDS OF MERIT
Cresap, McCormick & Paget, New York
First Federal Savings and Loan Association, Chicago.

OFFICE OF THE YEAR
Foote, Cone & Belding, Chicago

AWARDS OF MERIT
First National Bank & Trust Co., Tulsa
Northwestern Mutual Fire Association, Los Angeles

OFFICE OF THE YEAR
Sacramento *Bee*, Sacramento, Calif.

AWARDS OF MERIT
Pan-American Life Insurance Co., New Orleans
Toledo, Peoria & Western Railroad, East Peoria, Ill.

OFFICE OF THE YEAR
The Mennen Co., Morristown, N. J.

AWARDS OF MERIT
Associated Grocers Co-op, Seattle, Wash.
Brown Shoe Co., St. Louis

OFFICE OF THE YEAR
Columbian Carbon Co., New York

AWARDS OF MERIT
Standard Federal Savings & Loan Association, Los Angeles
Thomas & Betts Co., Elizabeth, N. J.

OFFICE OF THE YEAR
Jewel Tea Co., Melrose Park, Ill.

AWARDS OF MERIT
Manufacturers Trust Co., New York
International Brotherhood of Teamsters, Washington, D. C.

Up to 300 employees:

OFFICE OF THE YEAR
Sylvania Electric Products, Inc., Data Processing Center, Camilus, N. Y.

AWARDS OF MERIT
Capitol Records, Inc., Hollywood, Calif.
American Iron and Steel Institute, N. Y.

OFFICE OF THE YEAR
Federated Department Stores, Cincinnati

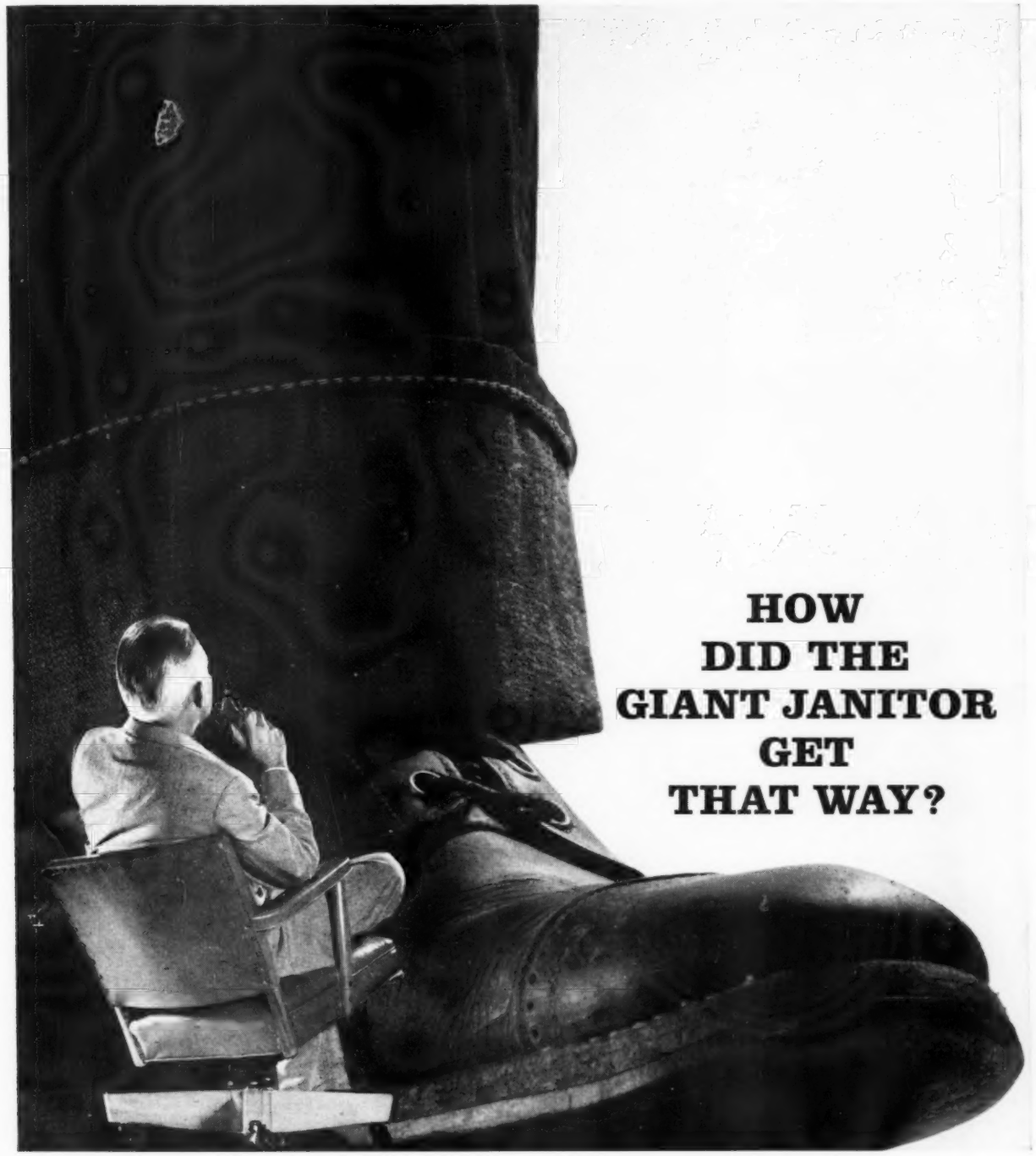
AWARDS OF MERIT
The Greyhound Corp., Niles, Ill.
J. Walter Thompson Co., Los Angeles

OFFICE OF THE YEAR
Guarantee Mutual Life Co., Omaha, Neb.

AWARDS OF MERIT
Kelly-Smith Co., New York
Wachovia Bank and Trust Co., Charlotte, N. C.

OFFICE OF THE YEAR
The Louisiana Companies, Baton Rouge

AWARDS OF MERIT
People's Drug Corp., Washington, D. C.
Reynolds Metals Co., sales office at Detroit



HOW DID THE GIANT JANITOR GET THAT WAY?

Start with an idea: contract janitorial service based on professional supervision of the work, and bulk purchase of supplies. Then go out and apply it.

If the idea is good (if it really serves the customer) then there's a chance to get big.

We started fifty years ago with little more than a couple of brooms and a mop. We're still good at our business. Our original idea is still solving problems and saving money for the people we serve. And we're the biggest in our field.

AMERICAN BUILDING MAINTENANCE CO.

CELEBRATING 50 YEARS OF OUTSTANDING JANITOR SERVICE

SERVING MORE THAN 40 CITIES THROUGHOUT THE U. S. AND CANADA

ADDRESS INQUIRIES TO 335 FELL ST., SAN FRANCISCO 2, CALIF. OR CONSULT YOUR TELEPHONE BOOK

(Circle No. 3 on Reader Inquiry Card)

OFFICE EXPANSION DEMANDS SOUND PLANNING

Lessons learned in New York to utilize office space now apply everywhere

This teak staircase at American Electric Power Co. serves two purposes: It reduces the load on elevators between floors, and its pleasant atmosphere relieves monotony.

By J. GORDON CARR, A.I.A.
J. Gordon Carr & Associates, New York

MOST ECONOMISTS AGREE that the 1960's promise to be a dynamic decade. Business did considerable "wheel spinning" during the middle and late fifties, but it seems now to have been more productive than many persons realized. More millions than ever have been spent on research to develop whole new industries through new discoveries and thousands of new products. These factors, combined with an abundance of mergers, have created an unprecedented growth of such proportions that it makes the 1940's and early fifties seem like another century.

This tremendous surge of business on the move has had a profound effect on office planning which can be illustrated with this sweeping statement: With the exception of two projects, every company J. Gordon Carr & Associates have put into new quarters during the past ten years has reached capacity at a far earlier time than expected, for reasons completely beyond our control. And this is despite the thorough preplanning for expansion in the form of reserve space, which is one of our basic concepts.

The point is that most companies leased all the space that they could possibly use in the "foreseeable" future. This future has turned out to be nearer than expected, with growth happily outstripping most projections. In some cases, the only alternative has been to move to a new building where rents may be higher, but necessary space is available. Other companies have been

Pittsburgh's "Golden Triangle" is representative of the office building complexes that are springing up throughout the country.

luckier: They leased far more space than their immediate needs called for and then sub-leased for short terms to cover the cost. As these sub-leases ran out, they took over. Even here, however, growth has been so phenomenal that in some instances the companies have had to add whole new departments in new buildings going up nearby.

In all fairness to the executives in charge of planning, many of these firms were affected by mergers which no one could have predicted at the time space was originally leased.

Trends began in Manhattan

Incidentally, in this dynamic economy of ours, many large corporations with 20-year commitments have through necessity after five years—more or less—had to terminate them and sign new 20-year leases elsewhere. Most of these companies going through "space gyrations" after so short a time in new quarters had existed quite comfortably in the same building for the previous 20 years. This underscores the dynamism of the sixties, which is now building momentum.

The beginnings of this trend began to show — slowly at first — in New York, immediately after the war, during the middle and late forties. Pressures began to build up for new office buildings as more companies expanded and new ones opened New York administrative headquarters. As a result, the pioneering for efficient and successful office planning and design methods was achieved on Manhattan Island. Now, a dozen years later, other cities are feeling these same needs and benefiting from a priceless background of experience gained by New York architects, builders, and real estate operators. Each new building has solved new problems in leasing arrangements, which have grown infinitely more complicated yearly with the increases in automation and other mechanical facilities. Negotiations in New York between builder, financier, owner, and tenant, which influence all phases of creating a new office structure, have enabled similar developments in other cities to take place far more easily.

This can be seen now with some of the finest contemporary design and planning going into office buildings in Los Angeles, San Francisco, Chicago, Dallas, Houston, Denver, and Montreal. The interiors of buildings in the *heart* of these cities is much the same as in New York in terms of layout, design and furnishing. The same trend toward smaller, more compact executive offices, more conference space, better looking furniture and use of color, greater utilization of inside space, more efficient lighting, and allowances for automation equipment in billing and accounting are taking place everywhere because they apply everywhere.

Exurbia set other trends

Administrative planning within buildings *outside* the downtown areas of these cities, however, has been going on since the war in the form of plant expansion. Whereas in New York the growth has had to be reflected in the form of office buildings, it has been more economical in outlying areas to house additional administrative personnel in a wing or second story of an existing plant. Often, complete new plant buildings have been built with careful consideration to administrative quarters—and this is a decided trend of our times.

Office areas in industrial buildings should receive — and often do — the same detailed planning for ex-

panding administrative functions as is given to downtown office buildings.

With this, then, has evolved a strong inclination for these "plant-office" companies to relate more functions and departments to administration, rather than their being isolated or connected to manufacturing. These include product and market research departments, engineering departments, and data processing. In a current instance involving a major paper products producer, the new administrative headquarters building now going up several miles from the plant will house all product research facilities. Until now, this function was physically identified with manufacturing. The decision to bring it under the administrative wing is a significant step in the continuing growth of administrative functions and their related services.

Fringe benefits tip scales

Plant expansion to accommodate administration has been the solution for many sizes and types of companies; but many more have found it advisable to either build their own separate administrative headquarters buildings or to lease space in offices downtown. This has been particularly true of those firms whose size now demands a more strategically located national headquarters; and this underscores the trend toward bigness so apparent today. Consider how many companies in 1947 could point to $500 million or more a year in sales. When companies reach a certain size, their commercial "centers of gravity" often undergo changes which demand that their "front" offices be in the heart of an urban area. And so the construction boom is on in almost every major city – a dozen years later than in New York – and benefiting from New York's pioneering.

Although basic problems of office planning, layout and design are essentially the same everywhere, there are a few variations depending on climate, urban or suburban location, and local customs.

Climate affects mechanical facilities and those elements of building design which deal with air conditioning. The architect of buildings in southern areas must design and plan for heavier air conditioning loads. And consequently, the interior arrangement of ducts, exterior sun shades, draperies, and other interior elements may be oriented accordingly.

Socony Mobil, New York, provides its employees with this lounge below ground level for club meetings and noon-time relaxation.

A company with offices in a suburban area should, and often must, provide employee service facilities for dining, emergency medical care, and recreation. Factors which determine whether or not and to what extent a company builds this into their quarters are the cost and competition for competent personnel and the degree of isolation in suburbia. The fact that employees cost more and are harder to hold is a growing cause for concern in downtown as well as in outlying areas. Many companies have found it necessary to offer more in the way of fringe benefits such as pleasant surroundings and service facilities. They often tip the scales in a company's favor with a good secretary who has her choice of attractive job offers.

Employee feeding problem

Office comfort may be important compensation for routine, less interesting work and a lower wage. Many insurance companies, for example, where work is routine, offer considerable advantages. One such company in a Texas suburb has gardens, a swimming pool, and a country club setting. This obviously cannot be done in city buildings, so we settle for dining rooms which serve nourishing lunches for less than cost, tasteful offices, careful control of acoustics, adequate lighting, and lounges for relaxation and recreation.

Look at the trends in employee feeding. Paradoxically, in New York, which has more restaurants per capita than almost any other city in the country, companies have been acutely aware of the need for employee cafeterias.

Cafeterias prevent lunch hour congestion and permit employees to eat and relax—and report back to the job on time. If other factors are equal, a secretary will work for the company with its own cafeteria rather than for one without.

This is true everywhere, but in many cities, this has not yet been recognized. For example, in a city where we are currently planning a major company's headquarters offices, it has been customary for employees to bring their lunches. Often they eat right at their desks, a practice that we believe should be

The office construction boom is not confined to the United States. The above architectural rendering shows the proposed 42-story Place Ville Marie in Montreal.

Planters, dramatic view of New York skyline brighten Corn Products elevator lobby.

discouraged for appearance as well as cleanliness. In the new building, company executives had recommended that we design a men's and women's lunchroom on each floor consisting of only tables and chairs, no food service. We pointed out that advances in vending machines make complete cafeterias practical and economical. We proposed that this company consolidate all feeding facilities in one location. They are giving this serious consideration.

The vending evolution began with machines for cold, then hot, beverages, progressed to those with cold sandwiches, then hot soups, hot sandwiches and finally entire hot luncheon platters in a wide range of choices. We have planned such installations for the Seagram Company, American Electric Power Company and others during the past year.

Let's look at the trend in medical services. Industry is conscious of the high cost of sick leave — and the value of healthy employees. Planning projects of any size — urban and suburban — are now including some form of medical facility. Some are minimum, using part-time doctors, while some larger companies boast a full-time medical staff with equipment that any small hospital would be proud to own. The trend is for management to allocate more money on the principle that when you have healthy employees, you have happier, more productive employees.

This same theory is responsible for the enlightened attitude toward recreational facilities. In downtown buildings, companies provide game rooms, libraries, lounges, and facilities for employee hobby clubs. In outlying areas with in-plant offices, companies have been known to install bowling alleys and swimming pools. Again, it's a matter of degree to be determined by a variety of factors: cost of space, nature of work, competition for employees — and most important, the basic philosophy of a company's employee relations program. The trend of the sixties is toward more such facilities.

It should be stated that while the architect-office planner has much to do with *implementing* a company's employee relations policy, he does not and should not have any part in formulating such policy—aside from offering his experience by pointing out how other companies have benefitted from certain physical facilities.

One danger here is that as competition for people in an area becomes progressively keener, companies will vie with each other to create more elaborate employee "attractions". This has already been overdone in some areas—and management must limit the "frills" when planning these important service facilities.

WHICH girl belongs to these legs?

Not Miss Clock-Watcher. She's been standing on a hard floor all day and her feet and back are aching—she can hardly wait to go home.

These legs belong to Miss Efficiency, above, whose boss provided her with a HYGIENIC FOOT COMFORT MAT. She's been standing all day too, yet her work is still accurate and efficient at closing time. Even her friendly "welcome customer" composure remains unruffled.

Here's the SECRET of HYGIENIC FOOT COMFORT MATS

Your selection of a beautiful rubber tile flooring is bonded to a sponge rubber base. Unlike cheap utility mats, this combination provides proper support without being mushy—will wear for years without denting or puncturing. Edges are beveled for safety and appearance.

Available in: Both Mats and Runners 8 Decorator colors to match any office decor

See your OFFICE SUPPLY DEALER or write to
FLOORING DIVISION— Dept. M
THE HYGIENIC DENTAL MANUFACTURING CO.
AKRON 10, OHIO, U.S.A.

(Circle No. 26 on Reader Inquiry Card)

. . . and sometimes necessary, but "frills" can be overdone

And now for some specifics.

The next decade will see the interior office environment simplified even more in regard to partition layout. This will be due to a more disciplined plan necessitated by larger spans in buildings. The result will be fewer columns and a trend toward more modular planning. This will be caused by the demand for easier flexibility, for changes, and that will lead to greater flexibility in utilities such as electrical work, lighting, and particularly air-conditioning.

Because of the air conditioning problem and the outside heat load from sun, there will be a trend toward less glass—at least the all-ribbon type of window. The glass area may increase vertically so it is almost continuous from floor to ceiling, but there will be some solid area in between, for many reasons, such as cutting down the heat load, more flexibility within the space, better vertical distribution for utility risers, and other controlling factors.

Ten years from now we will see light levels substantially higher than what is an acceptable average today.

The impact that office automation will have on office environment in the decade ahead will mean that greater care and thought will be given to the utilities and especially to the work areas housing these activities. These areas no longer will be considered just "work areas," but they will be show pieces which management will proudly show to outside visitors as "Exhibit A". They will be attractive through color, light, and finishes to a degree that is not considered today.

We do not believe that there is any one "most compelling single reason for improving the office environment." We do believe however, that improvement comes naturally when a company moves or increases its space. A well considered program is the best, and absolutely necessary, starting point. This will, in general, outline the company's needs and then analysis will pin-point and detail them. First will come the functions and the operations, followed by careful consideration to people in general, then right down to the individual. Psychological factors are being given more and more consideration in any good solution.

In connection with such planning, a knowledge of the latest thinking and development of methods and equipment is necessary – then, a strong "hand" in the company's top echelon who will hold the decisions made, allowing only those changes that are truly necessary to meet newly discovered conditions.

We feel that enlightened management all over the United States is seeing the benefits for improved office environment and consequently large investments are more acceptable today than a few years ago. If a company is wide awake, the top management knows what is being done in industry in general and naturally wants to stay up with the other leaders. Management recognizes the intangibles that are inherent in the overall picture and consequently is willing to spend money to achieve the aims. Topping this is management's realization of the importance to the overall operations of the office force of today's world.

. . . the strip you zip from a pack of ODIN* office printing papers. "Zip" and the pack is a pouch for easy removal of Bergstrom's *quiet-white** mimeo duplicator or bond finish printing paper. Remaining paper tucks back in the pouch for neat, identifiable shelf storage. Later, pack your finished, printed work in ODIN's double-life pouch; then tape-seal. You'll save 10%-15% office printing paper loss, *plus* extra wrap and wrapping time, *plus* temper, hands and fingernails of your girl (or man) Friday.
ODIN samples from your paper merchant, or wire . . .

BERGSTROM PAPER COMPANY
NEENAH, WISCONSIN
beautiful papers thoughtfully packed

*in readable colors, too

(Circle No. 11 on Reader Inquiry Card)

THE OFFICE MUST REFLECT THE COMPANY

Yet, too many offices project unclear or conflicting images

By J. GORDON LIPPINCOTT
and WALTER P. MARGULIES
Lippincott & Margulies, Inc., New York

ONE FINE spring day last year, a buyer from the Midwest, on a visit to a large Eastern city, decided he would avail himself of the many invitations from the Smith Supply Corp. to "come up and visit our headquarters any time you're in town."

Accordingly, he went to the address given on the Smith Corp.'s letterhead. This turned out to be a skyscraper in the mid-town section of the city. Once inside this anonymous structure, he ran into trouble. The huge board on the main floor listed several hundred corporations of various names, but no Smith Supply Corp. There was, to be sure, a John Smith Corp., but after checking his form letter from the Smith Supply Corp., and finding no John Smith mentioned, he decided it could not be the same company.

Finally, he thought of asking the elevator operator. The latter wasn't sure, but after a spirited conversation with several of his passengers, told him to try the sixteenth floor.

The entire sixteenth floor, however, was occupied by the American Supply and Paper Corp. In desperation, the weary buyer entered its carpeted reception room and engaged the receptionist in conversation. After a little deliberation and a few calls, she informed him that the Smith Corp. was a subsidiary of the American Supply and Paper Corp., and that it was located on the fourteenth floor.

Image problem is total

Perspiring but indomitable, the buyer proceeded down two flights. After wandering around the halls of the fourteenth floor, he noticed a sign on a door, "John Smith Corp." When no one responded to his timid knock (the door was closed), he opened the door to find a vast office filled with countless office machines and workers.

He hemmed and hawed for a minute or two, but finding himself unnoticed, finally approached one of the clerks. Like the elevator operator and the receptionist, the clerk conferred with wiser colleagues and stated that the John Smith Corp. was indeed the same as the Smith Supply Corp., but that this was only the accounting division; the executive offices were to be found on the seventeenth floor.

Once on the seventeenth floor, it was easy enough to locate the Smith Supply Corp., although the buyer was slightly confused by the appearance on its door of a trademark in the form of a large triangle which he had never seen before, having always associated the Smith Corp. with a gracefully swirled, S. He was also surprised by the reception room itself, where the heavy upholstery and old-fashioned decor suggested a law office rather than the up-to-date, fast moving operation he had pictured the Smith Corp. to be.

While waiting to see the sales manager, he read through the company literature, but since most of this dealt with the American Supply and Paper Corp., he was not elucidated. He learned from his reading that the Smith Corp. — or was it the John Smith Corp? — was only one of many branches of the American Supply and Paper Corp., but just how it was related to the parent company and to the other divisions, he could not clearly grasp. The more he read, the more confused he became.

By the time the Smith Corp. sales manager arrived on the scene, it was too late. The buyer had already decided in his own mind that there was no point switching his business to Smith. Good old Jones would do after all.

This anecdote is, of course, fanciful, and it suffers from the fault of all such morality tales: exaggeration for effect. But doesn't it sound like some companies you've run across. Could it possibly resemble your own?

What caused such a breakdown in corporate identity? Was it poor management, lazy employees, or a combination of both?

It is easy to put the blame on such obvious shoulders. After all, shouldn't it be someone's responsibility to see that the company's name was properly listed on the board? Or that the employees were better informed?

But what about the confusion in names? Why had this been allowed to go on so long? Or the musty atmosphere of the reception room? And the variety of trademarks?

All offices of this management consulting firm, a 1950 "Office of the Year" winner, are identified by this handsome paneled door and company name.

All of these aspects of the Smith Corp.'s public identity point to a more profound trouble: total lack of attention to the company's visible corporate image. True, the Smith Corp., and its parent, the American Supply and Paper Corp., had spent vast sums on projecting a corporate image in advertising and promotion, but they had neglected to follow this up on their own home ground — in the tangible, physical appearance they presented to the public.

The Smith Corp. is not alone in this neglect; it is common today. For all the talk about corporate imagery and for all the corporate image programs now in existence, few companies have viewed the image problem as it actually is: in a total concept, which involves every aspect of the corporation's contact with the public.

"Good front" is not enough

With notable exceptions, most image programming has limited itself to such areas as advertising, publicity, and promotion. Images, particularly in the consumer goods industry, have been largely product-oriented. Hence the failure to promote one of the most telling aspects of the corporation: its visible identity, as seen not only in its advertising, but more concretely in such things as its corporate signature, its corporate mark, its corporate name, and especially its corporate offices.

Many companies are aware, of course, of the necessity of putting up "a good front," that is, of making the office and reception rooms presentable and attractive. A good deal of money is spent on decor, but it doesn't always reap returns.

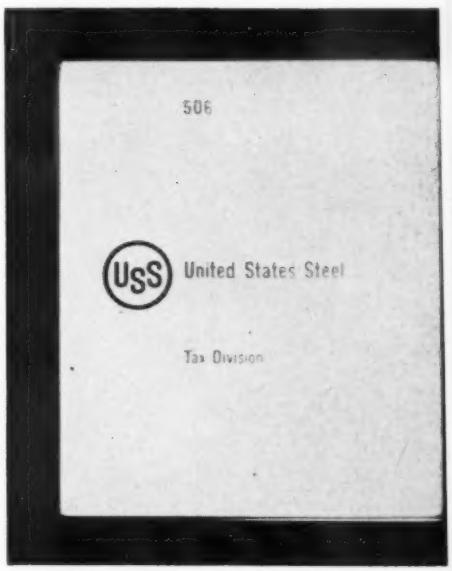
The fault is with the concept, or rather with the lack of one. Not knowing precisely what it wishes to say or what exact impression it wishes to convey, the "average company" ends up with an "average look," which is distinguished primarily by its vacuity and innocuousnes. Whether the design is contemporary or traditional, it is usually undistinguishable from the office next door, or down the street, or even in the next city.

Without a clear concept of the image to be presented, details are forgotten too. Hence the lack of trademark and name consistency at the imaginary Smith Company. Where no system exists, imagery becomes unclear and faulty.

This is not only a lazy approach; it is a wasteful one. Corporate head-

International Flavors & Fragrances, Teterboro, N. J., shows effective external symbol.

In reception area, American Electric Power Co., New York, uses symbols to correlate its subsidiary, American Electric Power Service Corp., to the parent organization.



Evolution of a corporate image: U. S. Steel's trademark underwent many changes (below) prior to its present form. It is now used throughout company offices (right).

"Image audit" should always precede office redesign

quarters and corporate graphics — the way a company looks to its public — combine to create the prime element of the "corporate look." Corporate management needs to take a cue from the restaurateur, the hotel owner, or the retailer who knows that his building and the way he signs his name represent his essential personality.

This kind of individuality requires a thorough analysis of the corporation's needs — a precise and detailed image audit — as it pertains to the company appearance. Before embarking on any office planning or renovation, management should ask itself a series of key questions:

1. What precisely is the overall corporate image we want to convey? Should we, for example, look modern, crisp, and machine-like? Elegant and luxurious? Or should we emphasize tradition and solidity?

2. What is our image now, as seen in our advertising and public relations? Can we complement or extend this image through our corporate headquarters?

3. If we have subsidiaries, branches, or divisions, are these clearly related to each other and to the parent company in our corporate communications? Can we aid in the clarification through our corporate offices?

4. What about trademarks, colors, company signatures, and logotypes? Can we use these consistently and promote them advantageously in our own backyard?

Answering these questions not only provides management with a clear set of goals; it ensures better results from the experts who are employed to bring the image to life. Such vexing questions as whether to use product displays, whether to hang pictures, use photographs or murals, even the problems of what materials to use, are more easily solved when they are considered in the light of a clear general concept of what has to be achieved.

The Olivetti Corporation's showroom, for example, which emphasizes the machine-like, crisp, and precise design that characterizes the Olivetti concern, does well to avoid the use of wood. Instead, it stresses the limpid clarity of stone. Conversely, the Bissell Corporation's new office and plant building in Michigan combines marble and wood to produce a striking impression of a contemporary manufacturer that produces efficient, but also elegant and colorful, products for home environment.

Unify names, trademarks

Similarly, company graphics and nomenclature problems also can be solved, if viewed in the light of overall corporate image concepts. The S. C. Johnson Company, for example, was known by several names and several trademarks—undoubtedly presenting a confusing picture to the public. Recently, it has taken steps to systematize its graphics and use a new and colorful trademark to identify itself everywhere, and call itself primarily by the familiar name, "Johnson's Wax."

Such a simple device as a trade-

Flu germs, cold germs, all can be spread by your office phone. Even phones used by only one person can become infected from bacteria in the air that breed on dark, damp surfaces.

Leading firms have found TELE-SEPTIC phone sanitizing spray cuts sick days due to colds, flu and other communicable illnesses. Ideal for home use, as well. Costs only $1.00 See Your Local Stationer or Office Supplier Now!

One Can of Laboratory Tested TELE-SEPTIC Keeps Your Phone Germ-free For Up to 6 Months.

Eaton Allen Corp., 170 Tillary Street, B'klyn., New York

(Circle No. 20 on Reader Inquiry Card)

mark can be used to impart individuality and uniqueness to corporate offices, plants, signs – all identifying devices. When combined with a distinctive logotype or signature, used on office doors, on corporate literature, on letterheads, on entrance signs, the corporation is no longer anonymous; it has become a distinct and recognizable personality.

Look at some of the famous buildings and offices in the country. Each projects a distinct and individual image.

New York's Seagram Building, with its plaza, fountains, and incredible all-bronze structure, is described in one guidebook as "a startlingly magnificent piece of advertising." And so it is, an image of a company that bespeaks prestige, graciousness and public-mindedness. It is invaluable to Joseph E. Seagram & Sons.

Buildings can change "image"

Similarly, the secluded old-world atmosphere of Random House says clearly, "leader in quality book publishing." On an even more grandiose scale is the IBM array of plants and offices, each designed to demonstrate IBM's industry leadership. Fifth Avenue in New York City is an entire street that creates a single impression of high fashion, luxury, and sumptuousness. This is because it is zealously guarded by the Fifth Avenue Association, which forbids moving displays ("too grotesque") and perenially goes to battle with the city fathers over various attempts made through the years to "downgrade" the Avenue.

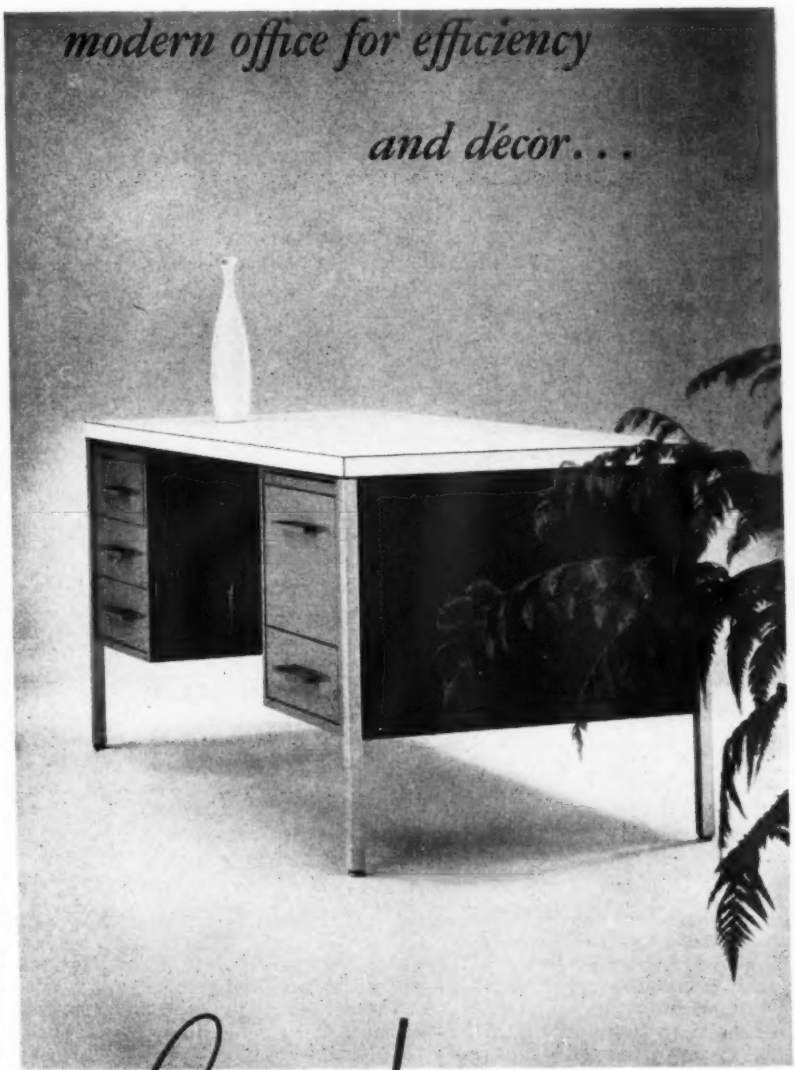
In recent years, banks have used their corporate headquarters to demonstrate a striking break with their previous images. Suburban branch bank offices conform to the friendly neighborhood atmosphere. In city banks, the formidable stone buildings have given way to airy glass structures, open to view.

These are, of course, spectacular examples of public corporate images beyond the pocketbooks and policies of the average corporation. But the concept they demonstrate holds true for all, from the corporate giant to the two-man, one-girl office. Like charity, the corporate image begins at home.

the result of material,

workmanship and imagination

--to better equip the



Peerless

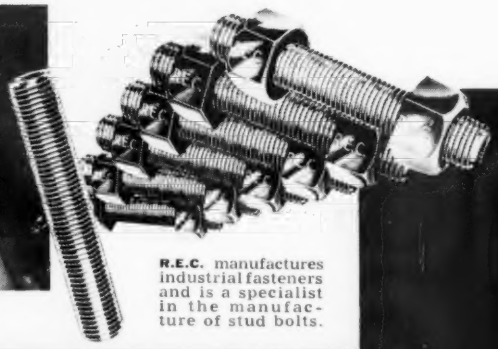
stylized office furniture

New York
Chicago
Houston
Seattle
Los Angeles

PEERLESS STEEL EQUIPMENT COMPANY
Unruh and Hasbrook Avenues
Philadelphia 11
Pennsylvania

(Circle No. 39 on Reader Inquiry Card)

IRVING T. HERSON, CONTROLLER of R.E.C. Corporation.



R.E.C. manufactures industrial fasteners and is a specialist in the manufacture of stud bolts.

THIS NATIONAL SYSTEM performs eight different complete operations for the R.E.C. Corporation.

"Our *National* Accounting System saves us $3,100 a year... returns 56% annually on investment."

—R.E.C. Corporation
New Rochelle, N. Y.

"Impressive money savings we have effected from installation of a National Accounting System are only one of many reasons for our satisfaction with your equipment.

"Equally important is the fact that our records are now kept up-to-date. Reports pertaining to production, overhead, and costs are now available to management without costly delays. Without our National System this would be impossible. We are alerted the instant a customer falls behind in payments and has reduced our accounts receivable. These facts we regard as more important than the actual cash savings.

"We are delighted with the National System we installed. Its flexibility, simplicity and the ease with which we are able to train operators are most satisfactory. Our National Accounting System saves us $3,100 a year, returns 56% annually on our investment."

Irving T. Herson

Controller of R.E.C. Corporation

Your business, too, can benefit from the many time- and money-saving features of a National System. Nationals pay for themselves quickly through savings, then continue to return you a regular yearly profit. National's world-wide service organization will protect this profit. Ask us about the National Maintenance Plan. (See the yellow pages of your phone book.)

THE NATIONAL CASH REGISTER COMPANY, Dayton 9, Ohio

1039 OFFICES IN 121 COUNTRIES • 77 YEARS OF HELPING BUSINESS SAVE MONEY

*TRADE MARK REG. U. S. PAT. OFF.

*National**

ACCOUNTING MACHINES
ADDING MACHINES • CASH REGISTERS
ELECTRONIC DATA PROCESSING
NCR PAPER (NO CARBON REQUIRED)

(Circle No. 35 on Reader Inquiry Card)

TOOLS OF THE OFFICE

Spectacular advances in the $6 billion-plus office equipment industry have made available entirely new tools for the improvement of office work. Following is a comprehensive analysis of these tools, with special emphasis on recent developments.

By MARY D. LYONS, Research Associate

In this section:

Adding, calculating, bookkeeping, and accounting machines 58

Mailroom equipment 62

Communications equipment 68

Dictating and transcribing equipment 75

Copying and duplicating equipment 78

Filing equipment and office safes 87

Integrated data processing equipment 95

Typewriters 108

Books for executive reading 112

Microfilm 114

Business forms 119

ADDING, CALCULATING, BOOKKEEPING, AND ACCOUNTING MACHINES

MODERN OFFICE work procedures have necessitated greater mechanization; and this fact has influenced the new development in adding and calculating machines. The sixties saw a good many improvements in these standard office machines, some of which are described below.

Addo-x Inc. has recently introduced its Printing Calculator Model 3541E which has a separate "finger-shaped" keyboard for multiplication. The machine reportedly automatically performs the multiplication by the number on the key depressed. All figuring is eliminated and the operator simply sets up the multiplicand and multiplier on the keyboard. When the total key is depressed, the result appears immediately – multiplicand, multiplier, and product appear on the tape. The new model also has automatic subtract-multiplication and a decimal point indicator which may be set in nine different positions.

Friden's new Model SBT has separate control keys for accumulative and negative multiplication. Like Friden's STW line, the SBT has both eight- and ten-column keyboards, offers separate control keys for accumulative and negative multiplication. Constant factors can be locked. Positioning of carriage and decimal points is automatic, and there is split dial clearance with dial accumulator locks.

Victor Adding Machine Co. re-

cently announced the new Digit-Matic Data Punch, a digital device that allows remote control adding machine operation through the use of solenoids with both a printed details tape and a punched data processing tape resulting. It can be activated from distant points and by a wide variety of associated equipment. A testament to the versatility of the Digit-Matic Data Punch is the feasibility of having it programmed by equipment now programming other digital handling or data processing devices.

It is possible to activate the unit through digital converters, communications systems, control instruments, digital counters, digital testing equipment, flowmeters, production scales, pulse height analyzers, temperature recorders, time interval meters, typewriters, and similar industrial, business, and laboratory instruments.

Simultaneously, from each such operation comes a printed record for immediate information plus punched tape for further automatic handling. The punched tape contains coded information in 5, 6, 7, or 8 channels.

Victor Adding Machine Co.'s latest entry into the field of adding machines is the new Premier. Available in both 10-key and full keyboard models, an interesting innovation in the Premier is the use of three separate motor bars to eliminate non-essential hand movements. Located in a vertical row, the length and position of each bar has been determined according to the functions employed. The longest bar is for adding and totaling. A short bar provides subtraction while the third motor bar can be used for both addition and subtotaling. This new "vertical bar" arrangement is said to facilitate use of the finger touch system on even full keyboard models.

Ten-key Premiers also have a larger, "L-shaped" cypher bar for easier thumb control, and an electrified "live" correction button which erases easily.

Available in both hand and electric operation, the Premier can be obtained with 8-, 9-, 10-, or 11-number listing capacity, and up to an eleven totaling capacity.

"Addo-x" model 3541E has separate "finger-shaped" keyboard for multiplication.

Bohn Duplicator Co.'s new "Contex" calculator has several division improvements.

Monroe Calculating Machine Co., Inc., recently announced a source data originator designed for data processing in accountancy. The new product, available in both single-register and duplex models, is the Synchro-Monroe Accountants' Program Punch Tape Adding Machine. The P-03 succeeds two earlier punch tape adding machine models, combining the features of both and offering several new features.

Compatible with data processors of all service bureaus, the portable Accountants' Program machine universalizes source data origination in processing for accountants. The machine features automatic repetition of all code information, eliminating the need of re-indexing repetitive reference numbers. Another new feature is Accountants' Program keyboard symbols, providing clear-cut identification of opening controls.

In Accountants' Program data processing, accounting information is recorded on punched tape. Tapes are processed at data processing service bureaus, and printed accounting records and reports are returned to the accountant for his clients.

Bohn Duplicator Co. has announced a new model of the Bohn Contex Calculator with several improvements in Division. Division is now more automatic than it had been heretofore. The Bohn Contex is a 10-key machine that adds, subtracts, multiplies, and divides. It weighs six pounds, costs $125.

While the Contex is manually-operated it has no "handle." Its actuating bar, depressed with the palm of the hand, operates like the motor bar on electric machines. This patented actuating principle enables the Contex to attain high speeds.

Monroe Calculating Machine Co.'s new LA-9 calculating machine has a "quick-shift" control lever which permits easier and faster shifting of the carriage; it allows all operations to be performed with one hand. Carryover upper dials allow "short-cut" multiplication. It is available in two capacities: The LA-203, with ten-column keyboard, ten counting dials, and twenty-place result dials; and the LA9-163 with 8-8-16 capacity.

Alma Office Machine's Newest addition to the world of adding machines is a ten-key hand adding machine with automatic credit balance.

The printing calculator is also equipped with an accumulating register which automatically adds and subtracts all totals and gives the grand total upon depression of the grand total key. This accumulating register saves the separate calculation which would otherwise be necessary to obtain the grand total.

Twenty-one separate totals are available in The National Cash Register Company's new Class 33 accounting machine. Automatic credit balances are obtained from

all 21 totals; the machine may be programmed to create as many as four totals in one operation, and the depression of a single key automatically totals or subtotals all 21 totals in sequence, making possible a complete daily statement of posting.

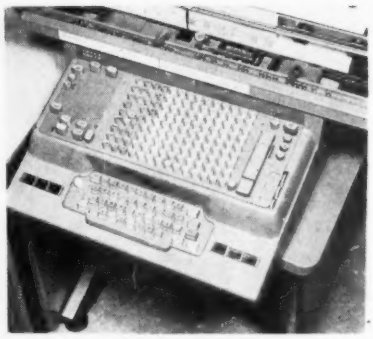
The Class 33 machine also protects the amounts on checks by automatically printing the dollar sign immediately to the left of the highest dollar amount. The machine will automatically determine if the operation has made an incorrect pickup. A single-key reverse entry control provides instant correction of erroneous postings and reversal of accounting entries without need for changing program or determining which totals must be affected.

The Class 33 has removable program bars which may be altered to meet changing requirements of particular accounting jobs. Removable program bars provide flexibility in the design of forms, and are said to permit a variety of bookkeeping applications to be placed on a single machine.

A built-in electric typewriter with 72 characters facilitates accurate description of all entries and simplifies auditing. The Class 33 is also available without a typewriter.

Comptometer Corp. recently announced the Comptometer Duplex Calculator, which has a memory unit. Designed to eliminate the need for reworking figures to arrive at a grand total, the new Duplex has two sets of dials, one of which stores figures both positively and negatively for use when needed. A two-key control simplifies operator decisions.

Comptometer also has the versatile Automatic Printing Multiplier Comptograph. It automatically multiplies, printing the right answer as well as both multiplicands in three horizontal lines. The new 12AM Comptograph will multiply three or more factors in a direct, straight-line flow without re-entry of intermediate results. It is said to add, multiply, or subtract, regardless of previous operation, without setting or pre-setting any controls.



National Cash Register's "Compu-Tronic II," is an electronic accounting machine with seven electronic memory units.

Adding and calculating machines

The following two lists cover the principal manufacturers of figuring equipment. The first list, devoted to makers of adding and calculating machines, is clarified by the use of the following code symbols:

E—Electric machines.
FK—Full-keyboard machines.
FKP—Full-keyboard printing machines.
IDP—Models which read and/or create a "common language," such as punched paper tape, or which otherwise are suitable for use in integrated data processing systems.
M—Manual machines
MI—Miscellaneous.
TK—Ten-key keyboard machines.
TKP—Ten-key keyboard printing machines.

Addo-X, Inc., 300 Park Ave., New York. (TK-E;M;TKP-E;MI-automatic multiplier)

R. C. Allen Business Machines, Inc., 678 Front Ave., N.W., Grand Rapids 4, Mich. (FK-E,M;TK-E,M;TKP-E,M)

Alma Office Machine Corp., 349 Broadway, New York 13. (TKP-E,M)

American Voss Corp., 18097 Sorrento Ave., Detroit 35. (TKP-E,M)

Bohn Duplicator Corp., 444 Park Ave., South, New York 16. (TK-M)

Burroughs Corp., 6071 Second Ave., Detroit 32. (FK-E,M;TKP-E,M)

Calculator Equipment Corp., 556 Central Ave., Orange, N. J. (MI-three models of Scotsman calculator)

Clary Corp., 408 Juniper St., San Gabriel, Calif. (FK-E,M;IDP;TKP-E)

Classic Calculators, Inc., Div. of Rex Rotary Dist. Co., 387 Park Ave. South, New York 16. (TKP-E)

Comptometer Corp., 5600 W. Jarvis Ave., Chicago 48. (FK-E,M;TKP-E)

Control Systems, Inc., 5 Beekman St., New York 38. (TK-E,M)

Facit, Inc., 404 Park Ave. South, New York 16. (TK-E,M;TKP-E,M)

Fremaco International, Inc., 188 W. Randolph St., Chicago 1. (TK-M;TKP-M)

Friden, Inc., 2350 Washington Ave., San Leandro, Calif. (FK-E,M;IDP;TKP-E)

The General Gilbert Corp., 150 Broadway, New York 38. (TKP-E)

Johnston Adding Machine Co., 13343 Sherman Way, N. Hollywood, Calif. (TK-E;M)

Lanston Monotype, Div. of Lanston Industries, Inc., 24th & Locust Sts., Philadelphia 1. (TK-E,M)

Olivetti Corp. of America, 375 Park Ave., New York 22. (TKP-E)

Olkon Research Corp. of America, P.O. Box 3049, Asheville, N. C. (TKP-E,M)

Regna Cash Registers, Inc., 175 Fifth Ave., New York 10. (FK-E,M;TKP-E,M)

Remington Rand, Div. of Sperry Rand Corp., 315 Park Ave. South, New York 10. (TKP-E,M)

Silver Bells Ltd., P.O. Box 982, Carmel, Calif. (FK-M)

Smith-Corona Marchant, Inc., 701 E. Washington St., Syracuse 1, N. Y. (FK-E,M;TK-E)

Swift Business Machines Co., 51 Church St., Great Barrington, Mass. (TK-M)

Underwood Corp., 1 Park Ave., New York 16. (TKP-E,M)

Victor Adding Machine Co., 3900 N. Rockwell St., Chicago 18. (FK-E,M;TKP-E,M)

Bookkeeping and Accounting Machines

This list covers a wide range of equipment, including standard bookkeeping and accounting machines and systems, charts, tables, and scales useful in accounting and bookkeeping, and, in a few cases, accessory equipment. It does not include integrated data processing equipment (which is covered elsewhere) except for standard punched

card systems. The following codes are used:

BA—Bookkeeping and accounting machines of the standard types—i.e., not listed in other categories.
C—Charts, tables, and scales.
E—Small electronic bookkeeping and accounting systems (complete units, no components).
IDP—Standard bookkeeping and accounting machines capable of creating and/or reading a common language record.
MI—Miscellaneous.
OWB—"One writing" systems of the binder type.
OWP—"One writing" systems of the "pegboard" type.
P—Punched card systems.

Addo-X, Inc., 300 Park Ave., New York 22. (BA)
R. C. Allen Business Machines, Inc., 678 Front Ave. N.W., Grand Rapids 4, Mich. (BA)
American Voss Corp., 18097 Sorrento Ave., Detroit 35. (MI-"one writing" systems of machine type)
Ayres Corp., Box 1081, Wilmington, Calif. (MI-Payroll tax computer)
Bates Accounting Forms Co., Inc., 33 W. 42nd St., New York 36. (C; OWB;OWP)
The Blackbourn Systems, Inc., 230 S. Cedar Lake Rd., Minneapolis 5. (OWB)
Burroughs Corp., 6071 Second Ave., Detroit 32. (BA;P)
Business Systems Corp., 436 Pearl St., New York 38. (OWB;OWP)
Carteret Printing Co., 480 Canal St., New York 13. (C;OWP;MI-Carbon forms for accounting machines)
Cel-U-Dex Corp., Box 1127, Newburgh, New Windsor, N. Y. (MI-Binders and indexing devices)
Comptometer Corp., 5600 W. Jarvis Ave., Chicago 48. (OWP)
Consolidated Business Systems, Inc., 30 Vesey St., New York 7. (MI-Diversified accounting forms)
Cummins-Chicago Corp., 4740 N. Ravenswood Ave., Chicago 40. (MI-Punched card reconditioners)
Delbridge Calculating Systems, Inc., 2502 Sutton Ave., St. Louis 17. (C)
The Denominator Co., Inc., 261 Broadway, New York 7. (MI-Manual tabulating units)
Diebold, Inc., 818 Mulberry Rd., Canton 2, Ohio. (OWB)
Ditto, Inc., 6800 McCormick Rd., Chicago 45. (MI-"one writing" systems using spirit duplication)

On this adding machine, you see mistakes before they happen

Notice the little window above the keyboard? No other ten-key adding machine in America has it. This "Check Window" allows the operator to see her mistakes before she makes them.

Other ten-key adding machines are "blind." The operator can't tell what figures she has entered *until* they're added or printed. And then it's too late. But on the Friden Model ACY adding machine, the Check Window dials let the operator verify the entry—or correct it—*before* it's added or printed. The result? Significantly fewer mistakes, far less time wasted in error correction.

Accuracy, plus speed, versatility and downright ruggedness, make the Friden ACY your wisest choice in adding machines. Call your local Friden Man or write: Friden, Inc., San Leandro, California.

***THIS IS PRACTIMATION:** automation so hand-in-hand with practicality there can be no other word for it.*

© 1961 FRIDEN, INC.

Friden

SALES, SERVICE AND INSTRUCTION THROUGHOUT THE U. S. AND WORLD

(Circle No. 21 on Reader Inquiry Card)

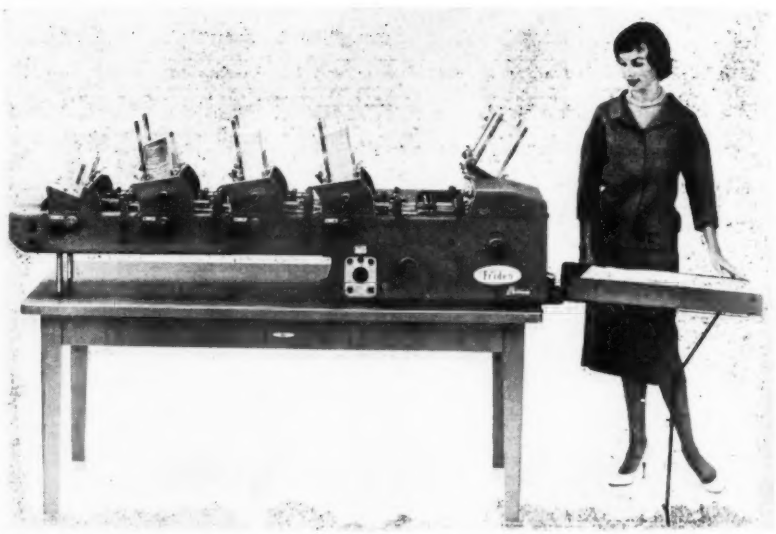
Evans Specialty Co., Inc., 2401 Venable St. East, Richmond, Va.
Friden, Inc., 2350 Washington Ave., San Leandro, Calif. (C;IDP;MI-Billing machine operated by punched paper tape, tabulating cards or both)
General Binding Corp., 1101 Skokie Hwy., Northbrook, Ill. (OWP)
The Institute of Business Research, Div., of Keller-Crescent Co., 28 E. Riverside Dr., Evansville 8, Ind. (OWB)
International Business Machines Corp., 590 Madison Ave., New York 22. (P)
International Payroll Machine Co., Box 293, Oxford, Pa., (MI-Payroll denominating machines)
Max Isaacs, 1019 McDonald Ave., Brooklyn 30, N. Y. (C)
LeFebure Corp., 716 Oakland Rd. N.E., Cedar Rapids, Iowa. (OWB; OWP)
David Lyons Co., 2100 Greenleaf St., Evanston, Ill. (C)
McMillan Book Co., 701 E. Genesee St., Syracuse 1, N. Y. (OWB)
Master-Craft Corp., Div. of Shaw-Walker Co., 831-903 Cobb Ave., Kalamazoo, Mich. (OWB;OWP)
Melcar Office & Business Equipment, 480 Canal St., New York 13. (C)
Monroe Calculating Machine Co., Inc., 555 Mitchell St., Orange, N. J. (BA;C)
The National Blank Book Co., P.O. Box 791, Holyoke, Mass. (OWB)
The National Cash Register Co., Main & K Sts., Dayton 9, Ohio. (BA;E;IDP;MI-"one writing" paper systems)
Norfield Methods & Procedures, Inc., 933 S. Clinton Ave., Oak Park, Ill. (OWP)
Olivetti Corp. of America, 375 Park Ave., New York 22. (BA)
Payroll Tax Service, Inc., 44 W. 29 St., New York 1. (C;OWP)
W. H. Pusch, 427 W. Lynwood, San Antonio, Texas. (C)
Recordak Corp., 415 Madison Ave., New York 17. (MI-Photographic accounting systems)
Remington-Rand, Div. of Sperry Rand Corp., 315 Park Ave. South, New York 10. (BA;IDP;P)
The Reynolds & Reynolds Co., 800 Germantown Ave., Dayton 7, Ohio. (OWP)
Royal McBee Corp., Data Processing Div., Westchester Ave., Port Chester, N. Y. (E;OWP;P)
S. K. Forms Co., 1907 Chestnut St., Philadelphia 3. (C;OWB)
Safeguard Corp., 320 Market St., Lansdale, Pa. (OWP)
The Shaw-Walker Co., Muskegon, Mich. (OWB;OWP)
The C. E. Sheppard Co., Div. of Yawman & Erbe, 1099 Jay St., Rochester, N. Y. (OWB;OWP)
Silver Bells, Ltd., P.O. Box 982, Carmel, Calif. (C)
Specialty Papers Co., 2028 Farrington St., Dallas. (C)
Speedograph, Inc., 5440 S. Ashland Ave., Chicago 9. (OWP)
Tab Products Co., 995 Market St., San Francisco 3. (P)
The Todd Co., Inc., Div. of Burroughs Corp., 1150 University Ave., Rochester, N. Y. (OWB; OWP)
UARCO, Inc., 300 W. Congress Pwy., Chicago 7. (MI-Autographic registers)
Underwood Corp., 1 Park Ave., New York 16. (BA;IDP)
Victor Adding Machine Co., 3900 N. Rockwell St., Chicago 18. (BA;P)
Visirecord, Inc., 54 Railroad Ave., Copiague, N. Y. (OWP)
Wilson Jones Co., 209 S. Jefferson St., Chicago 6. (OWB;OWP)

MAILROOM EQUIPMENT

Mailroom equipment includes addressing equipment, collators, folding and inserting machines, opening and sealing machines, postage metering machines, stamp affixing machines, postal scales, and sorting devices.

The addressing process usually involves addressing devices which "print" addresses from embossed metal plates, spirit masters, and stencils. The masters for the last two types can be prepared in individual form or in strips and rolls.

Many techniques employ a form of coding so that classes of addressees can be withdrawn from master files for selective mailings. Some machines are able to select addresses automatically; in others, the codes simply enable individual addressees in a particular category or group to be identified by the



Four-station Friden-Ertma Mail Inserter with various size inserts, including tabulating cards which are stuffed into envelopes, then sealed, counted, and stacked.

operator as he meets them. There are various methods employed to simplify the addressing process. Punched card postcards, for instance, are a big help since they eliminate the inserting process. They are used feasibly, however, only in companies where other operations are also handled by punched card equipment. Window envelopes aid the mailing process too, since they not only eliminate the addressing function, but also knock out the possibility of sending mail in the wrong envelope.

Facsimile, electrostatic methods

Other methods used today include an adaptation of the photoelectric reproduction method known as facsimile, and of an "electrostatic" process in which an optical system projects an address onto a label in such a manner as to create an electrical charge; the charged characters and numerals attract oppositely charged ink in the form of a spray. The latter method, not dissimilar to the xerographic copying process, is capable of operating at speeds of thousands of lines per minute.

Both of these techniques are incorporated into integrated data processing. Names and addresses themselves can be prepared automatically from such "common language" inputs as punched cards and punched tape. Because the processes are actually able to "read" the printed material on them means that the addressing equipment can be integrated into a system under automatic control, regardless of how the address cards or tapes are prepared.

Graphotypes used for plates

Embossed plates are also prepared automatically by the use of graphotypes controlled by punched tape, while spirit masters and stencils may be created by one of the diverse forms of automatic typing.

Addressograph-Multigraph has recently developed the Model 6760, their new Graphotype machine especially designed for bar code embossing. Plastic cards processed in this fashion serve as individual repetitive data memory units. They are utilized at points of action such as gas station pump island, department store counter, factory stock

Are your customers paying your postage?

If your mailing scale is old, inaccurate, and underweighs, your mail is going out with insufficient postage. And arrives "Postage Due" —which adds no luster to your business repute. Some companies refuse to accept "Postage Due" mail. So back it goes to you, to pay the postage due plus postage for remailing, not to mention the delay.

Or if your old scale overweighs, *you're wasting postage. A few* overpayments *of four cents each day can dribble away a lot of petty cash in a year.*

Have you checked your mailing scale lately?

Pitney-Bowes scales are precision made. The automatic mechanism doesn't deteriorate with use, keeps its accuracy year after year. The hairline indicator registers instantly, shows the exact postage required. The chart markings are big, and easy to read. Mailing is faster, easier. And every letter or parcel has the right postage.

PB makes seven scale models. One for parcel post has 70 lb. capacity. One has an international postage chart, for foreign mail. One is a beam scale, for the small office. Ask the nearest Pitney-Bowes office to show you the scale you need. Or send coupon for free illustrated booklet.

FREE: *Handy desk or wall chart of Postal Rates, with parcel post map and zone finder.*

Pitney-Bowes

MAILING SCALES

Made by the originator of the postage meter ... 139 offices in U.S. and Canada

PITNEY-BOWES, INC.
2986 Walnut Street
Stamford, Conn.

Send free booklet ☐ *rate chart* ☐

Name _____

Address _____

(Circle No. 40 on Reader Inquiry Card)

NO
OTHER
PAPER CUTTER
BUILT
SO WELL
TO SELL
SO LOW

all metal
Triumph
the precision Paper Cutter

SIZES 14" & 18"
(20½" MICHAEL)

FOR OFFICE, BOOKKEEPING & DUPLICATING DEPARTMENTS

For every business: Banks, hospitals, insurance companies, industrial organizations, stationers, photo finishers, small printers, lettershops, mimeograph, offset shops, advertising agencies, schools, colleges, churches.

Order from your dealer or
MICHAEL LITH sales corp.
145 West 45th Street, New York 36, N. Y.
■ Dealer: Write For Profitable Sales Plan.

(Circle No. 31 on Reader Inquiry Card)

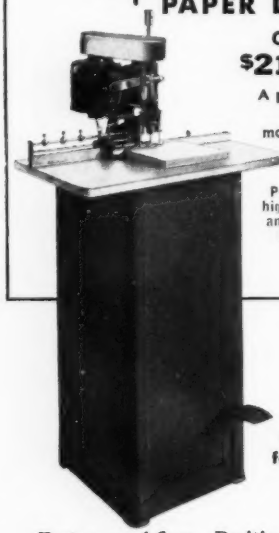
Your operator can feed stock with both hands with this Foot-Control Floor Model

Spirit
PAPER DRILL

ONLY
$216.00

A price where most bench models begin.

Prices slightly higher in Canada and west of the Rocky Mts.



Write us for details.

Faster workflow. Positive 2-hand control of stock. Ideal for women operators. A real bindery drill.

LASSCO PRODUCTS, INC.
485 Hague St. • Rochester 6, N. Y.

(Circle No. 28 on Reader Inquiry Card)

room, and wherever the original record is created.

The variety of addressing equipment is, obviously, extensive, and it vacillates in degree from highly complex machinery to very elementary manual devices.

The most rudimentary type of collating apparatus is a rack in which stacks of pages may be placed in sequence so that they will be gathered and arranged into individual sets. More advanced models use bins. The pages are collated from the bins (one page from each bin) to make complete sets. In instances where a feeding mechanism is provided from each bin, a basic mechanical collation can exist. This is achieved through the means of an arm which moves in and out of each bin taking the top sheet from the stack in order that it may be placed in proper sequence with sheets from the other bins. The series of arms so used are operated mechanically so that they are coordinated and may be easily operated. This type of collator may use foot control, manual power, or operate electrically.

Sheets gathered mechanically

The stacks are so arranged in other collators, that as the top sheets are taken away, they are gathered mechanically, as by riding on a moving belt. This technique permits many kinds of arrangements. In some cases, for example, the stacks are placed vertically while others are set in a horizontal sequence. Some collators carry the stacks in pockets which are mounted to rotate either vertically or horizontally.

Although friction feeds are included in a great many collating machines, there are others which depend upon a suction-type, or vacuum feed. In order to prevent misfeeding, the more expensive machines offer a variety of safety devices. Some measure the thickness of pages gathered from each stack, and, should double leading occur, the machine stops and a warning signal is given. Others are equipped with photoelectric cells scanning each station in order to stop the machine should a blank page appear in a stack. A wide variety of accessories is offered with the more complex machines. Included among these are counting, folding, stitching, stapling, and offset stacking facilities.

Postage metering equipment prints postage directly onto envelopes or onto postage labels or strips which are to be affixed to mailing pieces. Because the postage so printed is equivalent in amount to U. S. Government stamps of the same value, its use is controlled by strict government regulation.

Postage purchased in advance

The total postage for a unit is purchased in advance at the post office, and the amount paid for is set into a locked meter located somewhere in the machine. As postage is printed, its value is subtracted from the amount in the meter. The meters in all but the smallest machines are made detachable for convenience in taking them to the post office. Besides printing the postage, such machines also print a dated postmark and, if desired, some form of postmark advertising.

The most convenient of these machines for small office usage are those which are operated by hand. Larger models may be stocked with automatic leading devices. Postage metering facilities may be incorporated into machines which fold.

new PORTABLE MAILBAG HOLDER
Speeds Handling - Lowers Costs

EASY TO LOAD—MOVE—UNLOAD
Dealer Inquiries Invited

Write for details:
W. A. CHARNSTROM CO.
422 So. 7th St. Minneapolis 15, Minn.

(Circle No. 14 on Reader Inquiry Card)

gather, insert, seal, and stack mail all in one operation.

Most stamp affixing machines are designed to apply ordinary postage stamps directly to mailing pieces. In those companies which have no postage metering machines, this equipment is a great advantage. Accessory facilities for affixing stamps are often discovered in large labeling machines and other mailroom objects.

Postal scales differ from each other in both size and quality. Models range from small letter scales to scales designed to weigh parcel post packages. If scales do not have good quality workmanship, they may be inaccurate and will create a problem whichever way the error occurs: A reading which is unusually high results in unnecessary postage expenditure. A reading which is too low will undoubtedly result in a postage-due letter. Scales vary also in their weighing methods. Some employ springs, while gravity scales use a system of balances. Indicators differ in arrangement, information, and legibility. One feature designed to guard against misreading the scale is the so-called "gunsight" indicator, by which only the pertinent portion of the indicator scale is exposed to view at one time.

Inserting, opening, sealing . . .

Inserting machines gather materials and insert them into envelopes. The simplest machines insert only one item, but larger machines may gather enclosures from a number of stations, inserting complete sets. More advanced equipment in this category may fold the material, gather it, and insert it; postage metering facilities are also sometimes included, as well as sealing and stacking features. These machines can carry out the complete mailing operation once the original material has been prepared and addressed.

The most important task of the envelope opening machine consists of trimming a small edge off one side of the envelope. These machines may be operated either manually or electrically; the electric units, which have become increasingly popular, are able to open an enormous amount of envelopes in a very short time. Usually, the amount of material trimmed off can be regulated by a simple adjustment to the machine. In order to avoid cutting into material contained inside the envelopes, a jogging device can be used to shake all material to the bottom of the envelopes.

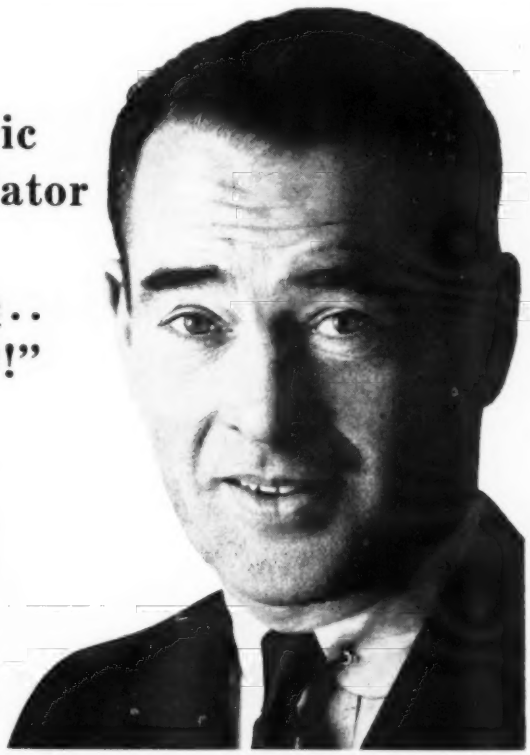
Sealing equipment is most often relatively uncomplicated as it merely moistens the envelope flap and then moves the envelope between rollers to press it closed. Some sealing machines can also apply postage stamps. More elaborate machines are electrically operated, and sealing features are often combined with postage printing and other mailing facilities.

Mailroom equipment

The list below is devoted to manufacturers of the principal types of mailing equipment, plus some equipment which, while not always used in the mailing room, may properly be grouped there. Because of space restriction, the list is limited to basic categories of equipment, which are indicated by the following codes:

EOS—Envelope opening and sealing
A—Addressing equipment.
C—Collators.

"new electric Thomas Collator saves office time.. Cost? $149.50!"



Prices slightly higher Denver and West.

At last! An efficient electric collator with desk-top convenience and portability . . . at a price every office can afford!

With the new Thomas *Gatherette* Collator, assembling of duplicated sheets into sets becomes a cost-cutting, one-person assignment. No more hand-gathering teams, no more time waste, no more drudge!

Effortlessly, the *Gatherette* handles standard 8½" x 11" sheets in a wide range of paper. Its simple operation means efficient use by any secretary or clerk.

Ask yourself one question. Does *your* office put together duplicated sheets into reports, catalogs or multi-page literature? Yes? Then find out why the money invested in a *Gatherette* is the smartest $149.50 ever spent! Have the Thomas people set up a demonstration at your convenience without obligation.

Thomas Collators Inc.

100 Church Street, Dept. E1, New York 7, N. Y.

(Circle No. 54 on Reader Inquiry Card)

TOOLS OF THE OFFICE

E—Electric machines.
F—Furniture other than sorting racks and bins.
FI—Folding and/or inserting equipment.
M—Manual machines.
MI—Miscellaneous.
PM—Postage metering machines.
PS—Postal scales.
SA—Postage stamp affixing machines.
SD—Sorting bins and devices of use in the mailroom.

Addressograph - Multigraph Corp., 1200 Babbitt Rd., Cleveland 17. (C-E;A-E,M)

Amberg File & Index Co., 1625 E. Duane Blvd, Kankakee, Ill. (SD)

Associated Industrial Designers, P.O. Box 39652, Los Angeles. (SD)

B-T Co., Inc., 121 N. Broadway, Milwaukee 2. (PS)

Bell & Howell Phillipsburg Co., 11 W. 42nd St., New York. (FI-E; PM-E)

Better Packages, Inc., 252 Canal St., Shelton, Conn. (EOS-E,M;MI-Tape dispensers and labelors)

The Bircher Co., Inc., 192 Mill St., Rochester 4, N. Y. (EOS-E,M)

Bohn Duplicator Corp., 444 Park Ave. S., New York. (EOS-M)

The Borg-Erickson Corp., 1133 N. Kilbourn Ave., Chicago 51. (PS)

Can-Pro-Corp., 19-23 E. McWilliams St., Fond du Lac, Wis. (MI-Mail bags and distributing cases)

Cel-U-Dex Corp., P.O. Box 1127, New Windsor, Newburgh, N. Y. MI-Label holders;SD)

W. A. Charnstrom Co., 422 S. 7th St., Minneapolis 15. (MI-Mail bag holders)

Cheshire, Inc., 1644 N. Honore St., Chicago 22. (MI-Labeling equipment;SA)

Chesley Industries, Inc., 24777 Telegraph Rd., Detroit 41. (MI-Mail carts)

The Collamatic Corp., Wayne, N. J. (C-E)

Corbin Wood Products Div., The American Hardware Corp., P.O. Box 1324, New Britain, Conn. (F;SD)

Cummington Corp., 277 Huntington Ave., Boston 15. (C-E;FI-E;PS)

Cummins-Chicago Corp., 4740 N. Ravenswood Ave., Chicago 40. (MI-Mail marking equipment)

Currier Mfg. Co., 2448 W. Larpenteur, St. Paul 13. (SD)

Davidson Corp., 29 Ryerson St., Brooklyn 5, N. Y. (FI-E)

Dependable Mfg. Co., 2407 Ft. Crook Rd., Bellevue, Neb. (F-Stools)

Derby Sealers, Inc., 100 Seymour Ave., Derby, Conn. (MI-Tape dispensers;EOS-E)

Detecto Scales, Inc., 540 Park Ave., Brooklyn 5, N. Y. (PM;PS)

A. B. Dick Co., 5700 W. Touhy Ave., Chicago 48. (FT-E)

The Dick Mailer Co., 137 W. Tupper St., Buffalo 1, N. Y. (MI-Labeling machines)

Didde-Glaser, Inc., Hwy. 50 & W. 12th St., Emporia, Kans. (C-E)

Elliott Addressing Machine Co., Cambridge, Mass. (A-E,M)

Equipto Div., Aurora Equipment Co., 422 Cleveland, Aurora, Ill. (F-SD)

Evans Specialty Co., Inc., 2401 Venable St. East, Richmond, Va. (C-M;MI-Moistener aid in sorting and counting)

Fairchild Camera & Instrument Corp., 580 Midland Ave., Yonkers, N. Y. (C)

Farrington Business Machines Corp., 77-A St., Needham Heights, Mass.

The Federal Equipment Co., P.O. Box 446, Carlisle, Pa. (F;MI-Mail bags and racks;SD)

Friden, Inc., 2350 Washington Ave., San Leandro, Calif. (EOS-E,M; E;MI-Mail bags, tables, mail bag holders, distributors;PS;SA;SD)

The General Fireproofing Co., 413 Dennick Ave., Youngtown 1, Ohio. (SD)

General Photo Products Co., Inc., 15 Summit Ave., Chatham, N. J. (C-M-For photocopying work)

Glue-Fast Equipment Co., Inc., 11 White St., New York. (MI-Tape dispensers, labeling machines; EOS-M)

Hamilton Specialties, Inc., 148 Old Colony Ave., Wollaston 70, Mass.

Hanson Scale Co., 1777 Shermer Rd., Northbrook, Ill. (PS)

Hartman Metal Fabricators, Inc., W. Main St., Waterloo, N. Y. (SD)

Haskell, Inc., P.O. Box 5273, Pittsburgh 6, Pa. (F)

Heyer Inc., 1850 S. Kostner Ave., Chicago 23. (A-M)

S. A. Hirsh Mfg. Co., 8051 Central Park Ave., Skokie, Ill. (MI-Shelving)

I.D.L. Mfg. & Sales Corp., 281 E. 137th St., New York 54. (PS)

Ideal Stencil Machine Co., 102 Iowa Ave., Belleville, Ill. (MI-Tape dispensers)

Industrial Molded Products Co., Inc., 609 New York Bldg., St. Paul 1, Minn. (EOS)

Interior Steel Equipment Co., 2352 E. 69th St., Cleveland 4. (F;SD)

Jayem Sales Corp., 230 Fifth Ave., New York. (SD)

Ketcham & McDougall, Inc., 465 Eagle Rock Ave., Roseland, N. J. (MI Tape dispensers)

Kohlhass Co., 8012 S. Chicago Ave., Chicago 17. (SD)

Lansdale Products Corp., Box 568, Lansdale, Pa. (EOS-E;FI-E;MI-Cutter and perforator to make up odd-size cartons from flat stock.

Lee Products Co., 2736 Lyndale Ave. S., Minneapolis 2, Minn. (MI-Fingertip application which aids sorting)

LeFebure Corp., 716 Oakland Rd. N.E., Cedar Rapids, Iowa. (SD)

W. C. Leute, 54 Dey St., New York 7. (MI-Mail bags)

Macey Co., 13835 Enterprise Ave., Cleveland 35. (C;FI)

Dick Mailer Co., 137 W. Tupper St., Buffalo 35. (MI-Labeling machine which applies addressed labels to various mailing pieces)

Mail-O-Matic Corp., Beverly-Hilton Hotel, Beverly Hills, Calif. (FI; M)

Marsh Stencil Machine Co., 707 E. B St., Belleville, Ill. (MI-Gummed tape dispensers)

Martin-Yale, Inc., 2100 W. Fulton St., Chicago 12. (EOS;FI)

J. Curry Mendes Corp., P.O. Box 822, Industrial Park, New Bedford, Mass. (C-E;FI-E)

Metal Specialties Mfg. Co., 3547 Mass. Ave., Indianapolis, Ind. (MI-Tape dispensers)

The Multistamp Co., 527-29 W. 21st St., Norfolk 1, Va. (A-M)

Nashua Corp., 44 Franklin St., Nashua, N. H. (MI-Gummed tape dispensers)

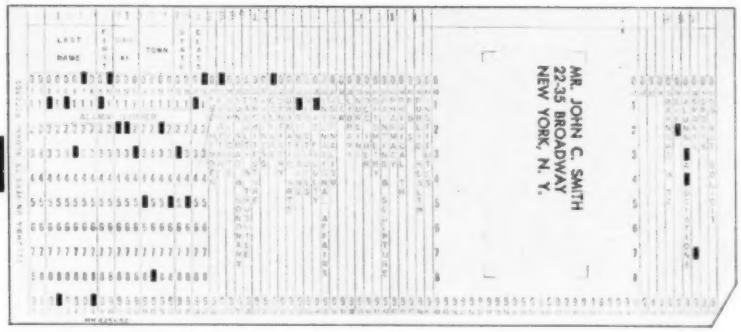
Nettle Mfg. Co., 27 Huntington Ave., Boston 16, Mass. (A-M)

Nu-Craft Ave., 317-321 Clarkson Ave., Brooklyn 26, N. Y. (SD)

Office Accessories Corp., 660 S. Fair Oaks Ave., Pasadena 2, Calif. (EOS-M;MI-Tape dispensers;SA)

SCRIPTOMATIC ADDRESSING SYSTEM:

each customer's profile . . .

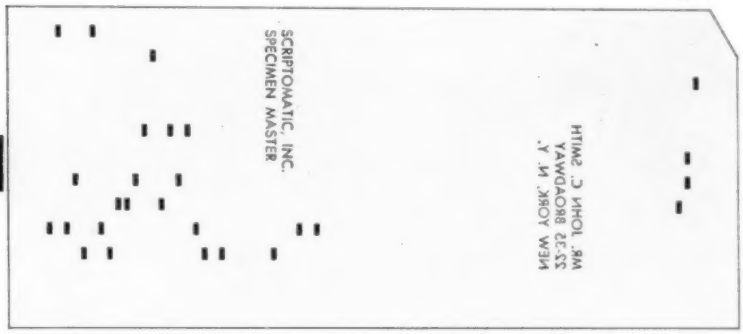


Front

Any punched or plain card becomes a Scriptomatic Master

Back

an address card master . . .



and the key to unequalled list handling flexibility

Scriptomatic Model 10 extends the economies of card masters, (punched or plain) to nearly all list users. Conveyor-stacker available.

A Scriptomatic Addressing Machine "reads" *any* punch card . . . selectively addresses and/or skips, sorts and counts as programmed—and *without* disturbing card file sequence! Masters are made in seconds on an electric typewriter . . . print *directly* to almost any size and type of mailing piece. Address masters remain the integral part of your card filing system. Dollar savings are as substantial as the cost of paper versus metal plates—with bonus savings in lower labor costs and up to 75% less filing space.

Scriptomatic represents the "perfect marriage of punch card records and addressing equipment". No other addressing and data writing system permits such versatility *and* economy for production operations—and there's a Scriptomatic model designed for your specific needs. Write today for detailed data, and case histories in your field.

Scriptomatic

Modern Addressing—Data Writing Machines and Methods

SCRIPTOMATIC, INC.
1111 Vine Street • Philadelphia 7, Pennsylvania

S1003

(Circle No. 48 on Reader Inquiry Card)

TOOLS OF THE OFFICE

Office Dynamics Corp., The Beverly-Hilton, 9876 Wilshire Blvd., Beverly Hills, Calif. (EOS-E;FI-E; PS;SD)

Pelouze Mfg. Co., 1218 Chicago Ave., Evanston, Ill. (PS)

Pitney-Bowes, Inc., 69 Walnut St., Stamford, Conn. (C-E;EOS-E; M;F;FI;E)

Pres-to-Line Corp. of America, 2045 Rosecrans Ave., Gardena, Calif. (EOS)

The Print-O-Matic Co., Inc., 724 W. Washington Blvd., Chicago 6. (EOS-E;FI-E)

The Recordplate Co., 130 N. Fair Oaks Ave., Pasadena 1, Calif. (SD)

Remington Rand Div. of Sperry Rand Corp., 315 Park Ave. South, New York 10. (C-M)

Rex-Rotary Distributing Corp., 387 Park Avenue South, New York 16. (FI-E,M;A-P,M)

Royal McBee, Westchester Ave., Port Chester, N. Y. (MI-Portable spirit type duplicator which reproduces fixed information such as addresses on envelopes)

S&M Distributing Co., 3875 Garland St., Wheat Ridge, Col. (A-M)

Seal-O-Matic Dispenser Corp., 169 Murray St., Newark, N. J. (EOS-M;MI-Tape dispensers)

The Sorter-Graf Co., 4044 W. Jefferson Ave., Detroit 9. (SD)

Speed-O-Print Corp., 1801 W. Larchmont Ave., Chicago 13. (EOS-E)

Standard Duplicating Machines Corp., 1935 Parkway, Everett 49, Mass. (EOS-E,M)

Standard Pressed Steel Co., Columbia-Hallowell Div., Box 919, Jenkintown, Pa. (SD)

Stromberg Time Corp., Subsidiary of General Time Corp., Thomaston, Conn. (MI-Stamps used to print date and time of arrival on correspondence and other papers)

William W. Stanley Co., Inc., 401 Broadway, New York 13. (MI-Mail bags)

Syntron Co., 715 Lexington Ave., Homer City, Pa. (MI-Joggers)

Swingline, Inc., 32-00 Skillman Ave., Long Island City 1, N. Y. (MI-Remote control electric stapler)

Tape, Inc., 2612 S. Broadway, Green Bay, Wis. (MI-Taped dispensers)

Thomas Collators, Inc., 100 Church St., New York 7. (C-E,M)

The Toledo Metal Furniture Co., 1108 Hastings St., Toledo 7, Ohio. (F;MI-Mail trucks;PS)

Toledo Scale Co., 1083 Telegraph Rd., Toledo 1, Ohio. (PS)

Triner Scale & Mfg. Co., 2714 W. 21st St., Chicago 8. (PS)

The Victor Safe & Equipment Co., Inc., 122 E. 42nd St., New York 17. (SD)

The Wadsworth Mfg. Co., P.O. Box 125, Wadsworth, Ohio. (C-E,M)

Weber Marking Systems, Inc., Weber Industrial Park, Mount Prospect, Ill. (MI-Label printing machines)

Wilson-Jones Co., 209 S. Jefferson St., Chicago 6. (EOS-M)

Chauncey Wing's Sons, 78 Pierce St., Greenfield, Mass. (MI-Label affixing machines;A-M)

Yawman & Erbe Mfg. Co., Inc., 1099 Jay St., Rochester 3, N. Y. (F;SD)

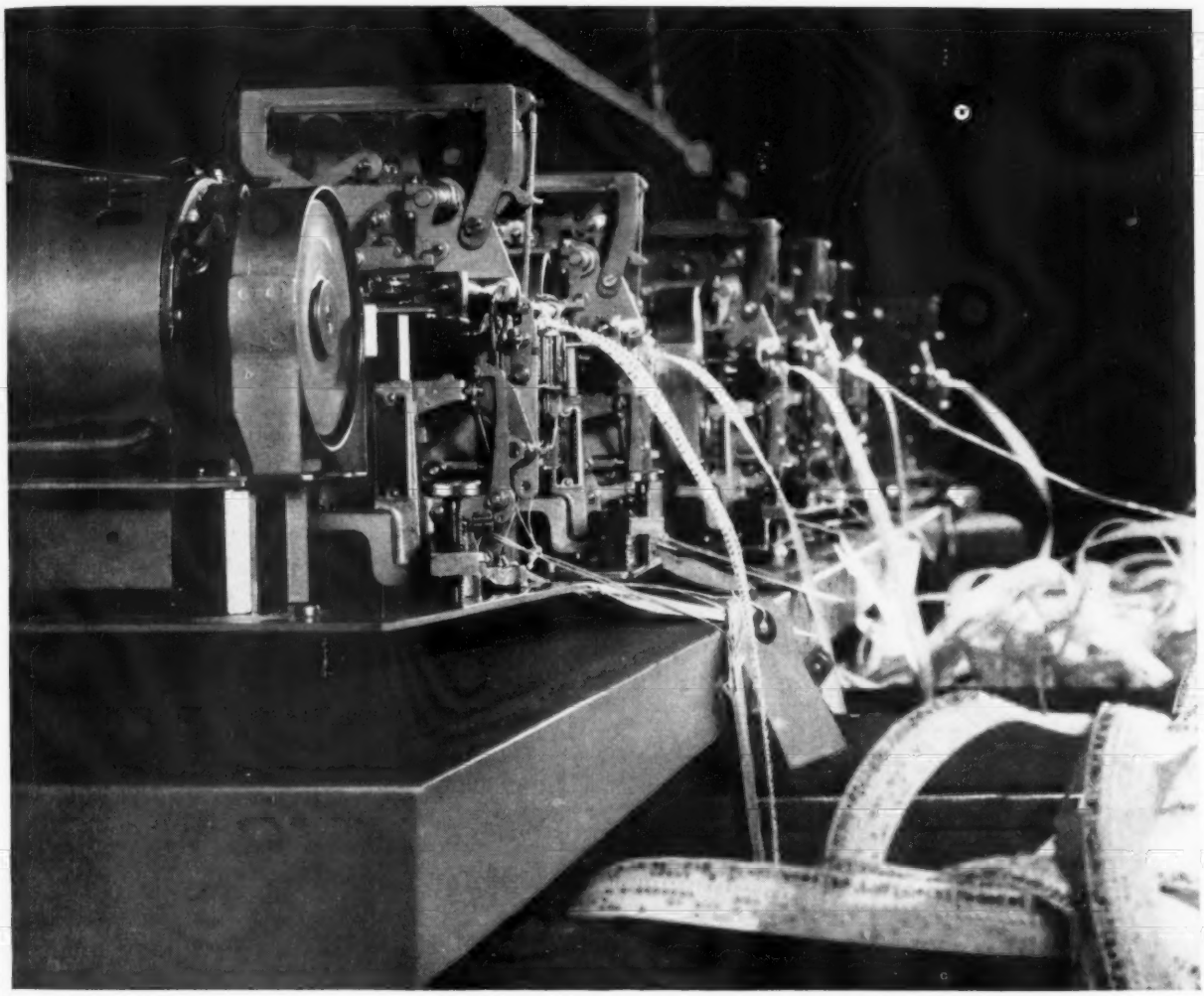
Zephyr American Corp., 95 Morton St., New York 14. (EOS-M)

COMMUNICATIONS EQUIPMENT

Methods of data transmission are becoming as efficient and miraculous as the many modes of voice communications so decisive in our history and common in our living: a potion for business communications that has simmered in the laboratories for two years, is spilling over the edge of experimentation onto the floor of practicality; it involves startling innovation and reaffirms what we often forget: the base and the spirit of communication in this country has no earthly equal.

Communications media once alien to another's requirements are being knitted in a common system to serve the increasing demands of business and science. Television is being used to transmit microfilmed data; handwriting can be transmitted over a telephone line; computers exchange information over a wire (if someone dials for them); data can be transmitted at 62,000

Using regular dial telephone or leased telephone lines, the IBM 1001 Data Transmission System sends information to a central office where it is converted into punched cards.



Continuous operation— a Teletype equipment tradition

All Teletype equipment . . . like the tape punches being final-tested above . . . are subjected to a rigorous quality-control program to insure that the units will give continuous, day-in, day-out performance in your service. Such performance is a Teletype tradition, established during more than fifty years of manufacturing data communications equipment.

To maintain this performance tradition requires much more than testing, however rigorous. It begins with the very design of the units themselves—the product of extensive research and development facilities, backed by cumulative experience. And it involves precision manufacture—employing the latest technological advances, from highly specialized machine tools and automated processes to electronic measuring and sensing devices.

When you select Teletype equipment to speed your communications and cut your paperwork costs, you can be sure of built-in quality. Teletype Corporation manufactures this equipment for the Bell System and others who require the utmost reliability from their data communications systems.

Typing Tape Punch

Tape Reader

Send-Receive Page Printer

Automatic Send-Receive Set

FREE Model 28 line folder. Write Dept. 36-A, 5555 Touhy Avenue, Skokie, Illinois.

TELETYPE®
CORPORATION
SUBSIDIARY OF *Western Electric Company* INC.

(Circle No. 53 on Reader Inquiry Card)

characters per second over microwave facilities which also carry voice conversations. This year, more previously unrelated equipment will join wires and wave lengths to relay urgent business facts.

The Data-Phone System

The Bell System's Data-Phone is a unit that sends and receives data, in any machine language, over a private or a regular telephone network. A Data-Phone set receives information from machines using punched cards, paper or magnetic tape, in the form of electrical pulses or *bits* and converts the *bit* into a tone suitable for ordinary telephone circuit transmission. At the receiving point (next door or across the nation), a Data-Phone unit reconverts the tone into an electrical *bit* that is fed into business machines, teletypewriters or other equipment. As many as 1,200 *bits* per second or roughly 1,600 words per minute, can be transmitted by the Data-Phone system.

Data-Phone is obviously an asset to companies needing immediate information of activities in the field, and of greatest value to those which could not otherwise erect or lease private wire systems. Data-Phone connections are put through as ordinary phone calls and billed at the same rate; when the connection has been made with the receiving point the information is transmitted automatically after flipping the Data-Phone switch.

One of the vital links in the use of electronic computers and peripheral equipment for sales forecasting, inventory control, accounting and billing information, is the swift transmission of raw information to a central processing center. Through daily operating statements, made possible by reports from branch sources to the processing center, management can *direct* its business —it can use foresight in daily operations in lieu of the historical analysis and often non-productive conclusions based on the *quarterly* report. It has been pointed out by the Bell System that the entire inventory of a supermarket, approximately 7,000 items, can be relayed to a central point in about eight minutes. If the transmission occurred from New York to San Francisco during the day the cost would be approximately $6.75.

Rapid expansion

There are about 1,000 Data-Phone sets in operation across the country at present. By the end of 1961 the Bell System expects to have 10,000 Data-Phone sets in operation and up to 200,000 sets functioning by 1965. Although the basic Data-Phone system was developed in 1958, the manufacturers of business machines were not making units compatible with the system. The intervening time has been well-used by equipment makers to provide a number of products that will translate data into machine language that can be transmitted by Data-Phone.

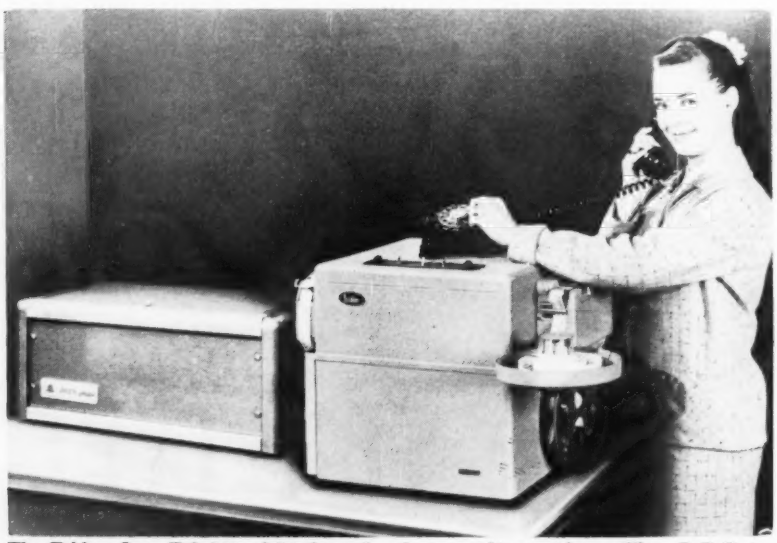
There are presently four different sets especially designed to work with various types of business machines that have been tested and rendered compatible by the Bell System.

Data-Phone 100 is used with punched tape machines on a one or two-way basis and has a top speed of 100 words per minute (75 *bits* per second). Machines that are available for use with this unit are Bell System No. 28 Teletypewriters, Friden Teledatas and RCA Low-Speed DASPAN.

Data-Phone 200 is the most flexible unit of the group because of its ability to work with a variety of business machines using diverse media. Currently capable of transmitting 1,600 words per minute (1,200 *bits* per second), the Data-Phone 200 is being used with the Bell System 1,000 W.P.M. Teletype, RCA High-Speed DASPAN, Daystrom, Teleregister, AVCO Comex, several IBM Teleprocessing systems (Transceiver, 1009, 7701), Minneapolis-Honeywell Reader and Punch; and the new Dial-O-Verter from the Digitronics Corporation. The media of these machines varies from punched tape, magnetic tape, punched cards, or communications from computer-to-computer, and interrogation of a central computer.

A trial is now under way between Kansas City, Mo. and Mt. Kisco, N. Y., utilizing IBM 7701's and Data-Phone 201 A (four-phase subset) transmitting data at the rate of 2,000 *bits* per second.

Data-Phone 400, primarily a one-way data gathering device, is encased in a housing similar to that of the Bell System's Call Director; it has a top speed of 20 characters per second or about 200 words per minute. The IBM #1001 card system, using the punched card method of gathering data, is currently the only machine operable with Data-Phone 400. Although several manufacturers are in various stages of testing and producing card readers, machines are not expected to be available before mid-1961.



The Friden, Inc., Teledata eight-channel code transmitter-receiver utilizes Bell Data-Phone 100 to transmit data at speeds of 425 codes per minute over telephone lines.

Data-Phone 600, now available in limited quantity, is designed for use with business machines that transmit handwritten messages and drawings, such as the Comptometer Corporation's Electrowriter.

Another data transmission facility is Western Union's Tele-Card system. Designed to operate with IBM 024 or 026 keyboard punches equipped with "read in-read out" harness, card to telegraph equipment converts punched card information to standard teleprinter signals that are sent over the telegraph system. The telegraph signals are then reconverted to punched cards.

Data transmission over microwave facilities is becoming more popular and expansive now that the Federal Communications Commission has revamped use of certain channels for common carriers such as Western Union, the Bell System, public utilities, and government agencies.

Less than 3,000 microwave stations had been licensed under the old policy of restricted authorizations. The Electronic Industries Association now predicts that 18,000 microwave stations will be in use by 1976. Before microwave becomes a convenient and widespread method of data transmission, however, the FCC must further extend licensing to a wider range of businesses.

Flexibility of microwave

Basically, microwave is a means of radio communications which utilizes ultra high frequencies to carry data in the form of electrical impulses. The carrier beam itself is focused and picked up like a beam of light by antenna; the width of the carrier beam is split into separate channels by multiplex equipment to handle voice transmission and other data media.

The cost of constructing an efficient microwave system with many repeater stations is prohibitive unless justified by constant usage.

Data transmission equipment may be compatible with telephone as well as microwave facilities. Such a new innovation is an interplant facsimile system recently developed by Alden Systems Co., Westboro, Mass. The system is capable of transmitting 30,000 messages per week such as letters, forms, financial statements or drawings on any size of paper, for a cost reported to be less than 5 cents each. An Alden Electronic Scanner transmits the message over microwave facilities to the Alden Facsimile Recorder which makes a high resolution copy of the material. It is possible to link many recorders to one scanner located at a central point.

At a remote station of the Microfilm Video Transmission System by Nord Photocopy & Electronics Corp., the viewer can scan any section of the film he wishes and electronically enlarge a specific portion as much as 60 times microfilm aperture size.

Closed-circuit television, once limited to specific use at shipping docks, airline ticket offices and brokerage houses, has been given a new dimension by the Nord Photocopy & Electronics Corp. The Nord Microfilm Video Transmission System (MVTS) permits the use of a central microfilm library from a remote viewing position. Microfilm is transmitted electronically without the use of vidicon camera or lights, from a central unit to a remotely located station. Equipped with remote control, the viewer can scan the film, select the portion he wishes to examine, and enlarge it as much as 60 times microfilm aperture size. A high-resolution image is produced through the use of 945 scan lines as compared with a 525 line system used in commercial television. Remote scanning sets are connected to the central unit by coaxial cable. Optional with the system is a voice intercom that connects the transmitter with all its monitors.

A method of visually communicating with a computer has recently been developed by the A. B. Dick Company. Called a Videograph Display Console, the high-speed electronic readout device can allow branch offices, warehouses, or any remote facility to interrogate a central computer located at some distance. The inquiry can be initiated through an integral keyboard, a Flexowriter, a punched card reader, or other forms of digital transmission. Working through direct connection with the computer or data storage equipment, or remotely via telephone line, the Display Console

The A. B. Dick inquiry station displays information retrieved from a computer.

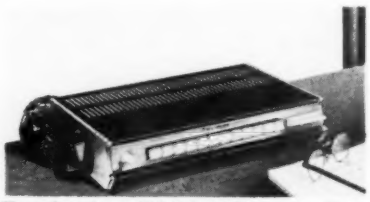
retrieves ten lines of information at a capacity of 19 characters per line. The projected data remains on the screen until erased by the operator. Heart of the Display Console is the Monoscope Character Generator, a device that converts digital information into television signals at electronic speeds for display on the screen. The Generator can be adapted to a number of computer code configurations and permits the user a choice of type style in any format for alphanumeric display.

Facsimile scanning

High-speed facsimile scanning and printing units capable of scanning and transmitting page-width documents of any length at a rate of 15 linear feet per minute were recently announced by A. I. Roshkind, Vice President, Research and Engineering, A. B. Dick Co. He stated that six hundred individual page-size documents may be transmitted and printed by the units in an hour. The units, which can be operated back-to-back or remotely over wide-band transmission facilities, are the latest developments in the growing line of Videograph data presentation systems, according to the manufacturer. They are designated as the Model 921 scanner and Model 902 printer.

The scanner, with its vacuum-ported scanning drum, accepts random length documents for scanning and then transmits the intelligence in the form of video signals to its companion printer for either continuous or intermittent "hard copy" print-out operation. Dry, permanent copies are produced on standard-weight paper.

According to TelAutograph Corp. of Los Angeles, standard teletypewriters can now make direct inquiries to electronic computers—from great distances and at low costs—through the use of their new line of communications equipment. The system utilizes standard components of Olivetti teletypewriter equipment for inquiry and reply linkage with an IBM RAMAC computer.



Transistorized Chief Redi-Power by Talk-A-Phone is compact, all purpose unit.

Operating through the Bell System's Data-Phone 200 subset the Dial-o-verter system by Digitronics Corp., uses regular telephone lines for sending and receiving data.

Stations in the Rapidofon network by tele-Norm communicate directly with each other.

Methods of voice communication have not changed drastically; the improved operation of intercom products continues.

Aside from the annual redesign and improvement of a voice communications product there has been an increased effort to provide business with peripheral telephone equipment: "hands off" equipment that allows the person to carry on a conversation while working with his hands. Some units act as an electronic ear that amplifies the conversation, both ways, when the handset is placed inside a cradle.

The telephone handset, itself a colorful character in the history of personal communications, can now be assisted in its automatic functions by a device called Dialaphone. By pressing the starter key of Dialaphone, a pre-selected telephone number is automatically dialed. The unit has an electro-mechanical memory that accommodates up to 850 names and number. The Dialaphone is said to eliminate dialing errors and of course saves time in looking for numbers.

Another companion for the telephone is the Electronic Secretary, an all-tape operated unit that answers the telephone and records messages of varied lengths. Manufactured by Electronic Secretary Industries, Inc., the transistorized unit is housed in a sleek cabinet designed by Raymond Loewy. Before leaving the office a businessman may record a message to greet the expectant caller. Messages received

By pressing the activator key the Dialaphone will dial a number automatically.

by the answering set while the businessman is out may be played back; a button is pressed to rewind and erase and the set is ready to accept new messages.

Another system of communications that will have a decided effect on business communications is the Speed Mail process developed by International Telephone and Telegraph Corporation. Messages on accordion-folded, gum-sealed paper are mechanically opened, electronically "read" and transmitted over AT&T microwave radio relay equipment in seconds. At the receiving end the signals are used to make exact reproductions of the original message. The facsimile message is then sealed (the message cannot be seen during the entire operation) and delivered locally in the usual manner. Equipment for the system, now being operated between Washington-Chicago-Battle Creek, was furnished by several companies including Stromberg-Carlson, Pitney-Bowes, Bell & Howell, Shepherd Industries, and Russell Ernest Baum, Inc. Itelex Systems Inc., a subsidiary of ITT, managed the development of the system and ITT's service organization, Federal Electric Corp., participated in the installation and maintenance of the demonstration project.

The TelAutograph Corporation has introduced a remodeled and improved Model D telescriber to increase the usefulness of handwritten wire communications. Writing directly on paper, the operator can create four copies of a message (three carbons and an original),

The Dictograph transistorized intercom can also be used for conference calls.

while transmitting a duplicate message to a remote receiving unit up to 50 miles away. The paper forms used in the telescriber can be specially designed for a particular business application or supplied in blank sheets; forms are punched marginally for automatic alignment in the machine.

The growth and prowess of communications equipment has been augmented with such vitality in 1960 that the new year of communications begins in a shroud of mystery. Smooth, steady progress in business communications is no longer anticipated. Our scientific genius and manufacturing ingenuity is unpredictable—springing from unknown sources new machines—like jack-in-the-boxes.

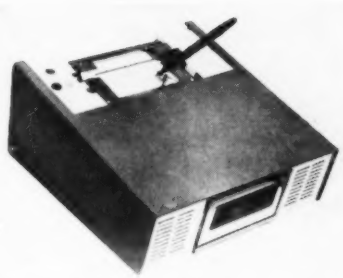
Communications Equipment

The following list covers the principal manufacturers of communications equipment of various types.

The code symbols in the list are as follows:

C—Conveyer systems.
DT—Data transmission systems.
EH—Systems employing a form of "electronic handwriting."
F—Equipment of the facsimile type.
MI—Miscellaneous.
P—Pneumatic tube systems.
PD—Paging equipment of the direct wire type.

Telephone can be used without hands with the Phone-Speaker from Fischer-Smith Inc.



New Model D TelAutograph telescriber transmits written messages up to 50 miles.

PMI—Paging equipment, miscellaneous.
PR—Paging equipment using radio.
PSA—Paging equipment using an automatic switchboard.
PSM—Paging equipment using a monitored switchboard.
PW—Paging equipment of the "wireless" type.
T—Teletypewriter equipment.
VD—Voice equipment of the direct wire type.
VMI—Voice equipment, miscellaneous.
VR—Voice equipment, using radio.
VSA—Voice equipment using an automatic switchboard.
VSM—Voice equipment using a monitored switchboard.
VW—Voice equipment of the wireless type.

Action Systems Co., 34 Cambridge St., Meriden, Conn. (PD;VD)

Aircall, Inc., 224 E. 38th St., New York. (PR)

Airmatic Systems Corp., 441 Market St., Saddle Brook, Rochelle Park, N. J. (P;C)

Allied Radio Corp., 100 N. Western Ave., Chicago 80. (PD;VD)

American Development Electronics Co., 210 Central Ave., Newark, N. J. (VD)

American Dynamics Corp., 1445 City Line Ave., Philadelphia 31. (VMI)

American Telephone & Telegraph Co. (Bell Telephone), 195 Broadway, New York. (T;VSM;DT)

Calls are received and messages recorded automatically by the Electronic Secretary.

TOOLS OF THE OFFICE

Auth Electric Co., Inc., 34-20 45th St., Long Island City 1, N. Y. (PD;PR;PSM;VD;VSM)

The Autocall Co., 160 Tucker Ave., Shelby, Ohio. (PD)

Automatic Electric Sales Corp., Northlake, Ill. (VSA;PSA)

Bliss Electronic Corp., Box 366, Sussex, N. J. (PSA;VD;VSA)

Bogen-Presto Div. of the Siegler Corp., Box 500, Paramus, N. J. (VD)

Cambridge Co., 224 N. Desplaines St., Chicago. (PD;VD)

Continental Mfg. , Inc., 1612 California St., Omaha, Neb. (PD;VD; VMI-background music)

S. H. Couch Co., Inc., 3 Arlington St., N. Quincy 71, Mass. (PSA; VD;VSA;VSM)

Dictograph Products, Inc., 95-25 149th St., Jamaica 35, N. Y. (PR; VD;VR;PSM;VMI)

Dialaphone, 2515 Palm Place, San Mateo, Calif.

DuKane Corp., 103 N. Eleventh Ave., St. Charles, Ill. (PD;PR PSA;VD;VR;VSA)

Edwards Co., Inc., 90 Connecticut Ave., Norwalk, Conn. (VD;PD)

Electronic Secretaries Industries, Inc., Waukesha, Wisc. (Telephone answering set).

Electro-Vox Intercom Corp., 9 E. 54th St., New York. (PD; PSA; VSA; VD)

Executone, Inc., 415 Lexington Ave., New York. (PD;MI-sound Systems; VD)

Federal Telephone & Radio Co., 100 Kingsland Rd., Clifton, N. J. (PR;PSA;VR;VSA)

Fanon Electric Co., Inc., 98 Berriman St., Brooklyn, N. Y. (PSA; PSM;PW;VSA;VSM;VW)

Feiler Engineering & Mfg. Co., 8026 N. Monticello Ave., Skokie, Ill. (PW;VW)

Fischer-Smith Inc., 164 State St., Teaneck, N. J.

Grover Co., 25525 W. Eight Mile Rd., Detroit 19. (P)

International Business Machines Corp., 500 Madison Ave., New York 22. (MI-DT)

Interlex Systems, 67 Broad St., New York 6. (C;P;PR;PW;T; VD;VR;VSA;VW)

Kay-Townes Mfg. Co., Box 593, Rome, Ga. (VD)

Kellogg Switchboard Supply Co., 6650 Cicero Ave., Chicago. (PD; PSA;VD;VSA)

Kleinschmidt Corp., Div. of Smith-Corona Marchant, Deerfield, Ill. (T;DT)

Lamson Corp., 10 Lamson St., Syracuse, N. Y. (C;P)

Line Electric Co., 271 South 6th St., Newark, N. J. (PD;PSM)

J. M. Loge, Sound Engineers, 2171 W. Washington Blvd., Los Angeles 18. (PD;VD)

Michigan Electronics, Inc., 854 N. Rockwell, Chicago. (VD)

Mohawk Business Machines Corp., 944 Halsey St., Brooklyn, N. Y. (MI-Recording unit for transmitting paging calls)

Motorola Communications & Electronics, Inc., 4501 Augusta Blvd., Chicago 51. (PR;VR)

North American Industries, 156 Fifth Ave., New York 10. (MI-telephone amplifier)

North Electric Co., 553 S. Market St., Galion, Ohio. (PD;PSA;VD; VSA;VSM)

Philco Corp., Tioga & C. Sts., Philadelphia. (PR)

Radio Corp. of America, Front & Copper Sts., Camden 2, N. J. (PD;PSA;VD;VSA)

Rauland-Borg Corp., 3535 W. Addison St., Chicago. (PD;VD)

Servus-Fone, Div. of Motiograph, Inc., 4441 W. Lake St., Chicago. (PSM;VSM)

Mark Simpson Mfg. Co., 32-28 49th St., Long Island City 3, N. Y. (PD;PW;VD;VW)

Smith-Corona, Inc., 701 E. Washington St., Syracuse 1, N. Y. (T)

Wm. M. Smith Co., 20 Ferguson Ave., Broomall, Pa. (PD;VD)

Stromberg Carlson Co., Div of General Dynamics Corp., Special Products Div., 1400 N. Goodman St., Rochester, N. Y. (PD;PSA; VSA)

Stewart-Warner Electrics, Div. of Stewart-Warner Corp., 1826 W. Diversey, Chicago. (F)

Talk-A-Phone Co., 5013 N. Kedzie Ave., Chicago. (PD;PW;VD;VR;-VW)

Tandberg of America, Inc., 8 Third Ave., Pelham, N. Y. (TR)

TelAutograph Corp., 8700 Bellanca Ave., Los Angeles. (EH;MI-closed circuit TV for data information; T)

Telecom, Inc., 1019 Admiral Blvd., Kansas City, Mo. (PSA;VSA)

Tele-Norm Corp., 55 W. 42nd St., New York 36. (PD;PSA;VD;VSA)

The Teleregister Corp., 445 Fairfield Ave., Stamford, Conn. (MI-Special electronic reservations systems)

Times Facsimile Corp., 540 W. 58th St., New York 19. (F)

Transelectric Mfg. Co., 53 Hopewell Rd., Oxford, Pa. (VD)

Vocaline Co. of America, Inc., Coulter St., Old Saybrook, Conn. (PW;VW)

Webster Electric Co., 1900 Clark St., Racine, Wis. (PD;VD;VW)

The Western Union Telegraph Co., 60 Hudson St., New York. (F;T; DT)

The Wheeler Electronic Corp., 150 E. Aurora St., Waterbury 20, Conn. (VD)

Wheelock Signals, Inc., 273 Branchport Ave., Long Branch, N. J. (PD)

TOOLS OF THE OFFICE, 1961

February:	Dictating and transcribing equipment
March:	Copying machines and copying papers
April:	Duplicators and duplicating supplies
May:	Typewriters, carbon papers, typewriter ribbons
June:	Mailroom, addressing, collating, numbering equipment
July:	Communications equipment
August:	Microfilm equipment and supplies
September:	Input equipment for electronic data processing
October:	Electronic data processing equipment
November:	Punched card accounting equipment
December:	Adding, bookkeeping, accounting, calculating machines

DICTATING AND TRANSCRIBING EQUIPMENT

Operating methods of dictating and transcribing machines have not changed radically since the widespread use of the magnetic recording media. Most equipment has undergone a refining process to increase the fidelity of recording and playback as well as the actual dictating procedure. Exactly how much the dictating machine can be purified is a matter of conjecture at this point, however, manufacturers continue to stress the "hands-free" aspect of simple operation; it would seem that further development to eliminate virtually all operating procedure would necessarily produce a radically different piece of equipment.

Remote dictation has always been simple for the dictator. He is faced only by a simple handset with two or three, or possible only one button to control his dictation, and not a blinking little machine that exerts pressure through its humming presence. A remote station does not eliminate any of the usual dictating procedure it merely shifts most of the mechanical functions to an employee, generally a girl in the transcribing pool or a secretary in a nearby office. Fewer buttons and more safety devices on standard units are prohibiting accidental or faulty operating procedure to such a degree that the dictator need exert very little effort to gain the smooth operation of a personal machine. In the past, the remote dictation system has been used primarily by a number of executives having light dictating requirements; the executive whose job requires sending a quantity of letters will want a machine of his own to avoid being held up by a busy party line.

Transistors have increased the dictating machine's margin of flexibility. Lightweight, portable, battery-operated machines can be conveniently operated under ordinary business circumstances with little effort. The fidelity of portable machines, although not as high as the larger office machine, is much above the minimum quality needed for accurate transcription.

In many cases, the portable unit is used for conference recording as well as regular dictating-transcribing chores. Complaints about the accuracy and fidelity of dictating machines can generally be dissolved by the improved speech of the dictator. A dictating machine will not bathe a normal voice in the warm tones of a radio announcer; if an executive from the Bronx must mend his vowels to establish contact with a secretary from Atlanta there is a less painfull alternative: hire a transcriber from his native quarter versed in the native tongue. Fortunately, very little can be blamed on the equipment.

A few machines can be equipped for voice-actuation operation. Usually an attachment, the voice-actuation accessory, permits recording only when someone is speaking, thereby utilizing the entire recording tape, or whatever the medium happens to be.

Voice-actuation is an integral part of the new remote wireless dictation and recording system marketed by American Geloso Electronics, Inc. The Remote-Tape unit consists of a wireless microphone, a receiver-control unit, an actuator to start and stop the recording unit, and a standard Geloso Stenotape recording/transcribing unit. Operating on citizens' band frequencies, the dictator speaks through a small, wireless, microphone-transmitter, and is recorded by the Stenotape unit up to one-half mile away. The transmitter is powered by a nickel cadmium cell and can be adapted to increase its broadcast radius. An electronic gating circuit prevents the

Dictating controls and playback speaker are often found in the handset of a recording unit as they are in the Envoy magnetic tape unit by Edison Voicewriter.

dictation of another transmitter from interrupting the recording.

The Message Recorder unit manufactured by SoundScriber Corp., records and reproduces telephone messages relayed through an automatic internal dial telephone system. Consisting of two combination Communicator recorders-reproducers on a common base, the unit automatically records telephone messages on plastic discs with fifteen minutes recording time on each side of the disc. Either of the machines can be used for recording or transcription by indicating the function on a selector button.

Indicative of the value and potential of the dictating machine market is the recent entry of IBM with a new line of products. Following the purchase of the Peirce Wire Recorder Corporation of Chicago in February 1960, IBM has presented a distinctly styled, fully transistorized, Executary dictating machine that records on a magnetic belt medium (the belt holds 14 minutes of dictation and is reusable). The Executary does not incorporate any radically new devices nor does it embody any new concepts of dictation. Its appearance, however, is generally interpreted as a sign of a healthy market.

Although claims for the superiority of one medium over another (be it magnetic tape over plastic disc, or plastic belt over magnetic sheet), have not diminished, neither have they become conclusive. Only the wire medium has become less popular since its commercial introduction in 1945. To cover the range of personal tastes that ultimately decide on the medium used, some companies market an entire line of portable and office machines using a variety of recording material. There is certainly no trend indicating a popular attraction to one quality or shape of dictating media.

Dictating and transcribing machines

The principal manufacturers of dictating and transcribing equipment of various types are contained in the following list.

Code symbols in the list are as follows:

MB—Equipment employing magnetic belt.

MD—Equipment employing magnetic disk.

MP—Equipment employing magnetic paper.

MS—Equipment employing magnetic sheet.

MT—Equipment employing magnetic tape.

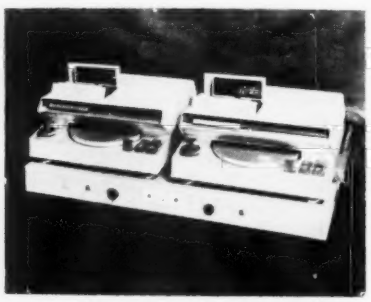
N—Network systems.

PB—Equipment employing plastic belt.

PD—Equipment employing plastic disk.

American Geloso Electronic, Inc., 251 Park Ave. South, New York. (MT;N)

American Dictating Machine Co., Inc., 51 W. 45th St., New York 36. (MD;N)



The Message Recorder for telephone messages is a product of SoundScriber Corp.

The new IBM Executary dictating machine uses a magnetic belt recording medium.

TRAVELER
new battery portable lets you dictate
anywhere!

Dictate anywhere . . . on a train, airplane, in your automobile . . . even on a raft in the middle of the ocean. Powered by flashlight batteries you can buy anywhere, the **Traveler** records on small plastic discs which are mailable in standard business envelopes for regular postage.

Now you can answer correspondence, record important thoughts, prepare reports en route. No need to jot down hurried notes on easily lost scraps of paper . . . no need to wait to get back to the office. Instead, return to a clear desk, relaxed and with more accomplished.

The transistorized **Traveler** weighs less than six pounds, records at 33⅓ RPM (playable on most home phonographs), and is compatible with any Soundscriber equipment ever built. Dictate as you fly . . . **Traveler** meets "Electronic Interference Elimination Specification MIL-I-17623" permitting its use aloft.

SOUNDSCRIBER®
PORTABLE DICTATING SYSTEMS

The SoundScriber Corp., Dept. OMT-1
6 Middletown Ave., North Haven, Conn.

Name _____
Company _____
Address _____
City _____ State _____

(Circle No. 52 on Reader Inquiry Card)

TOOLS OF THE OFFICE

Telephone and Time-Master recorder make up the Dictaphone Telecord System.

Ampro Corp., 2835 N. Western Ave., Chicago. (MT)

Cole Steel Office Machines, Inc., 415 Madison Ave., New York 17. (MT)

Comptometer Corp., 5600 W. Jarvis Ave., Chicago 48. (MB)

Dictaphone Corp., 420 Lexington Ave., New York 17. (PB)

De-Jur Amsco Corp., 45-01 Northern Blvd., Long Island City 1, N. Y. (MT;MS)

Thomas A. Edison Industries, McGraw-Edison Co., 31 Lakeside Ave., West Orange, N. J. (N;PD; MT)

GBC America Corp., 89 Franklin St., New York 13. (MT)

Geiss-America, 6424 North Western Ave., Chicago 45. (MT-Magnetic tape or wire)

The Gray Mfg. Co., 16 Arbor St., Hartford, Conn. (PD)

Inter-Continental Trading Corp., 90 West St., New York 6. (MD)

International Business Machines Corp., Electric Typewriter Div., 545 Madsion Ave., New York 22. (MB)

Magnedisk Dictating Co., 52 E. Brink St., Crystal Lake, Ill. (MD)

Miles Reproducing Co., Inc., 812 Broadway, New York 3. (N;PB)

Mohawk Business Machines Corp., 944 Halsey St., Brooklyn 33, N. Y. (MT;N)

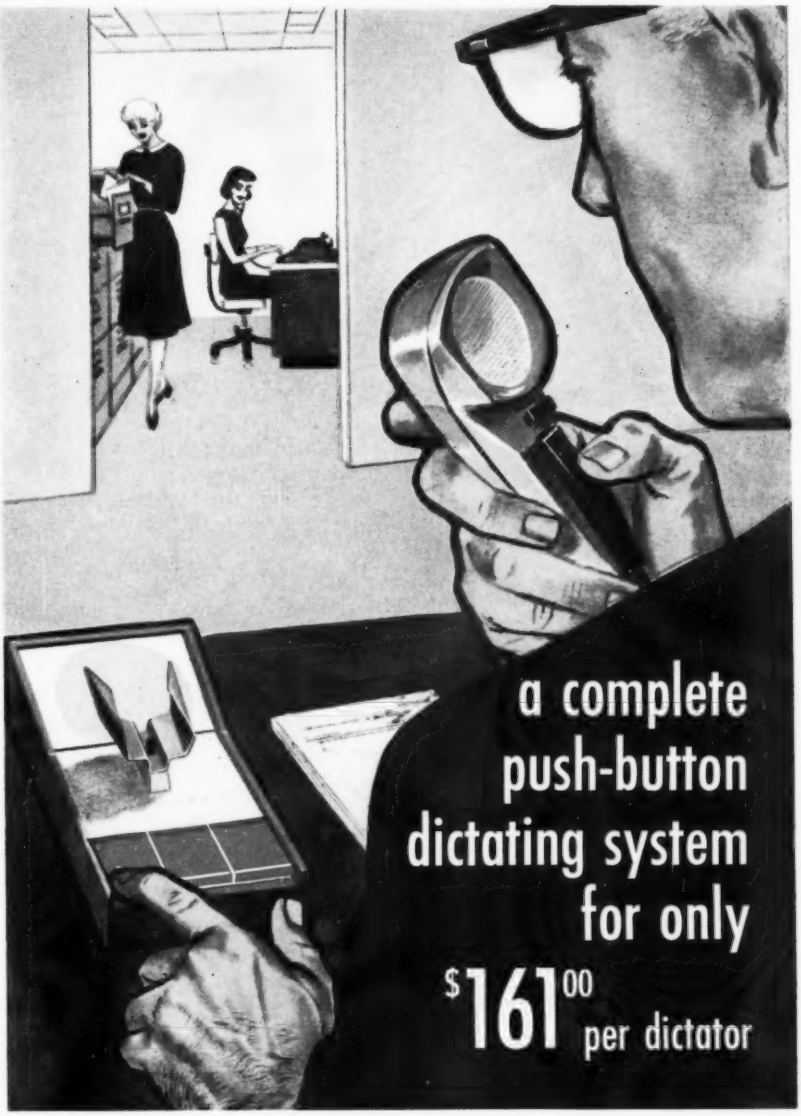
North American Philips Co., Inc., Dictating Equipment Div., 230 Duffy Ave., Hicksville, N.Y. (MT)

Vanguard, Division of Monroe Calculating Machine Co., 556 Central Ave., Orange, N. J. (MP)

Scribe International, Div. of General Sintering Corp., 6949 W. North Ave., Oak Park, Ill. (MT; N)

The SoundScriber Corp., 6 Middletown Ave., North Haven, Conn. (N;PD)

Stenocord of America, Inc., 29 Broadway, New York 6. (MB)



SoundScriber's new SATELLITE SYSTEM

Now, all the advantages of modern dictation and you need **never** touch a dictating machine, bother with indexing strips, change belts or discs. All you need on your desk is the new **Satellite** . . . just half the size of your telephone. You simply pick up the "mike" and talk . . . push buttons and **"Magic Memory"** do the rest.

Satellite relieves you of business pressures . . . dictate correspondence, record thoughts while they're fresh in mind . . . just speak them and forget them. Work gets done faster . . . more accurately . . . more efficiently.

You can have your own Private Satellite, or you can equip your offices with a complete Satellite System for only **$161.00** equipment cost per dictator. Best of all, machine manipulation is gone forever.

Mail coupon for free brochure, shown below, describing today's most advanced dictating systems.

SOUNDSCRIBER®

DICTATING SYSTEMS FOR THE OFFICE OF THE SPACE AGE

The SOUNDSCRIBER Corp., Dept. OMS-1
6 Middletown Ave., North Haven, Conn.

Name_____

Company_____

Address_____

City_____ State_____

(Circle No. 52 on Reader Inquiry Card)

COPYING AND DUPLICATING EQUIPMENT

As far as a firm's need for copying or duplicating equipment is concerned, each company must be adjudged individually. Some companies may need only copying equipment, or only duplicating equipment. One company may find that an elaborate systems machine is feasible; another may find that a simple machine, perhaps a portable, which is inexpensive and practically foolproof in operation, is what it needs.

There are approximately a dozen distinct processes which can be used for copying or duplicating exclusive of such methods as ordinary carbon paper, automatic typing, conventional printing methods, microfilm reproduction, or the output of integrated data processing systems.

Obviously, no one process can accomplish every necessity. Some copying processes cannot copy two-sided material; others cannot pick up certain colors. Some are satisfactory when only a few copies are needed, but are relatively slow or costly if multiple copies are needed. Some can produce multiple copies at high speed, but cannot be used to reproduce certain types of materials. Even so, due to the great choice of processes being offered, the chances are good that a machine or machines can be selected which will save both time and money, and produce copies of precisely the quality required.

Copying equipment is used to make copies of existing material without normally requiring the preparation of some intermediate, such as a master or stencil. Such equipment is essentially designed for making relatively few copies of any one original. Six of the copying processes – diazo, facsimile, photocopy, Thermofax, verifax, and xerography were described in detail in the March 1960 issue of *Office Management and American Business*. Copying equipment can copy drawings, art work, and in many cases even photographs, directly from the original.

Duplicating equipment, on the other hand, is intended to make long runs at high speed, and at low cost per copy. In practice, each of the duplicating processes requires an intermediate, such as a master, stencil, or set type. Six of the processes in this category are gelatin, offset, relief, special liquid, spirit, and stencil. These were also fully described in the March issue of this magazine. Briefly, the 12 processes are as follows:

Photocopying

Photocopying: The photocopy processes employ the principles of conventional photography, so modified as to make photocopy machines convenient, reasonably simple office tools. True photocopying can take several different forms; all of them employ the chemistry of photography and all of them employ a mechanical arrangement in which copies are made through direct contact with sensitized materials—as opposed to the use of a camera or other optical systems.

The "transfer" system of photocopying is one in which the original material is normally placed

New A. B. Dick Videograph (See Intercommunications, p. 71) scanning and printing units will scan and print page-width documents at rate of 15 lin. ft. per min.

face to face with the sensitized sheet which will become the negative. Original and sensitized sheet are exposed to light in a "printer," or in the "printing" slot of a combination machine. Light passes through the copy sheet to the original where the dark areas (lines and letters) absorb it, and the lighter areas reflect it. This reflected light produces a reaction in the light-sensitive coating of the copy sheet, altering it chemically so that it turns dark when it is developed.

Thermo-Fax

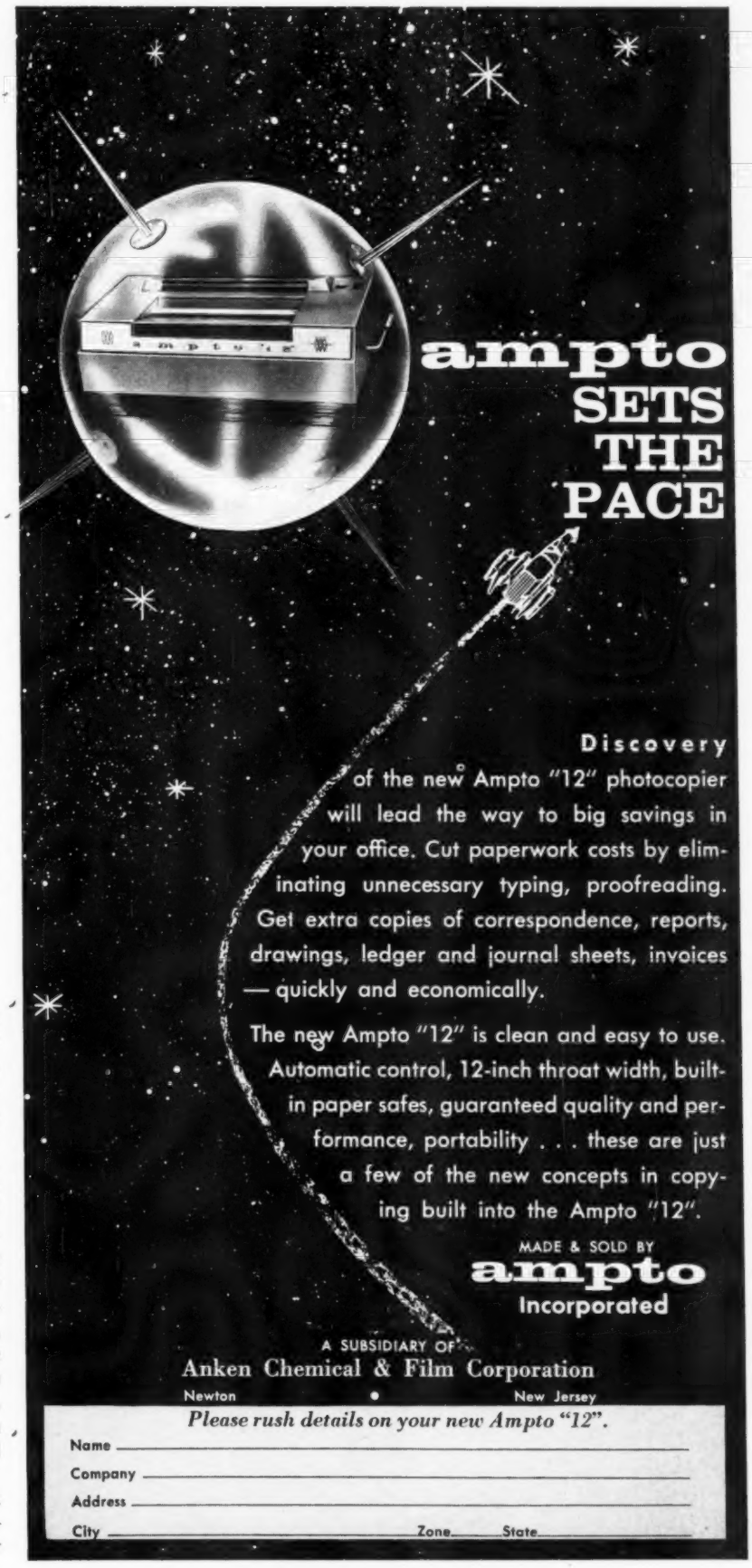
Thermo-Fax: This process makes use of the fact that dark substances, such as office ink, tend to absorb more light than light-colored substances. In the process of absorbing light, the dark substance generates heat. It is heat that "burns" the copy paper, producing the image. The copy paper used is heat-sensitive coating face up, on top of the material to be copied. In the Thermo-Fax machine, the two sheets are exposed to an infra-red light source. The light passes through the copy paper to the original. Where the light strikes, the darker areas formed by letters, lines, numbers, etc., it is absorbed, generating heat. The portions of the copy paper directly above the lines and letters turn dark, thus reproducing the material beneath.

Xerography

Xerography: The xerographic process makes use of the fact that like electrical changes repel each other, while unlike charges attract. In the actual process the following steps occur:

First, using a copying camera, the image of the material to be copied is projected onto a coated plate, which bears a positive electrical charge. Light acts on the plate to cancel the electrical charge. Since light is reflected only by the lighter-colored portions of the original, the plate retains its charge in those areas corresponding to the dark lines and letters of the original. Thus, the image has now been copied in the form of an invisible electrical charge.

In the developing process, a dark resinous powder carrying a negative electrical charge is passed over


ampto
SETS
THE
PACE
Discovery
of the new Ampto "12" photocopier will lead the way to big savings in your office. Cut paperwork costs by eliminating unnecessary typing, proofreading. Get extra copies of correspondence, reports, drawings, ledger and journal sheets, invoices — quickly and economically.
The new Ampto "12" is clean and easy to use. Automatic control, 12-inch throat width, built-in paper safes, guaranteed quality and performance, portability . . . these are just a few of the new concepts in copying built into the Ampto "12".
MADE & SOLD BY
ampto
Incorporated
A SUBSIDIARY OF
Anken Chemical & Film Corporation
Newton • New Jersey
Please rush details on your new Ampto "12".
Name
Company
Address
City Zone State
(Circle No. 5 on Reader Inquiry Card)

GOOD NEWS

for owners of "peel-apart" photocopy machines

NEW PHOTOCOPY PAPER

with "built-in" developer gives you improved copies *on any* "peel-apart" copy machine

Do you occasionally have to make two or three attempts to get a decent, usable copy? Do you get prints which are yellow . . . which have weak and ghosty blacks?

Would you like to get top-notch prints every time . . . on your first try?

A newly developed paper, High Contrast No. 1, is the answer to your problems. Whether you have an APECO, AMPTO, COPEASE, CORMAC, DRI-STAT, PHOTORAPID or any other "peel-apart" (silver transfer) machine, this new paper will give you the best copies you ever made.

Originally developed to overcome the problems of bad copies during hot weather, High Contrast No. 1 will give you superior prints all year 'round. The secret is in the developer, which is *in the paper* as well as in the solution. This means less frequent solution changes, reducing maintenance.

10 FREE SAMPLES!

We think this paper is so terrific we'd like you to have 10 sheets **absolutely free** so you can try them in your own office on your own machine. We **know** you'll be amazed at the results. Mail the coupon today.

PEERLESS PHOTO PRODUCTS, INC. *Shoreham, Long Island, New York*

Gentlemen:

Your new High Contrast paper sounds interesting. Please let me have the 10 free samples so I can try them out on my own machine.

PEERLESS

I have a _____ photocopy machine.

NAME _____ TITLE _____

COMPANY _____

STREET _____

CITY _____ ZONE _____ STATE _____

OM-1

(Circle No. 58 on Reader Inquiry Card)

the plate. Because unlike electrical charges attract, the powder adheres to those areas of the plate which represent the letters and lines of the original, making the image visible.

To make the copy, a sheet of paper, positively charged, is placed over the plate. A portion of the negatively charged powder is attracted to the paper. (It is possible to obtain up to eight copies from the powder which remains on the plate). The paper, with the powder adhering to it, is then placed in a "fuser" where it is exposed to heat. This embeds the powder firmly in the paper, producing a permanent copy.

Xerography—the process used in Haloid Xerox's 914 office copier depends upon the projection of the image of the original material onto an electrostatically charged selenium drum. Following exposure, a pattern of charged and discharged areas corresponding to the original image remains on the drum. Oppositely charged ink powder then is drawn to the charged areas and, in turn, is transferred to paper brought in contact with the drum.

The Electro-Stat desk-top copier was recently placed on the market by Apeco. This machine differs from the Xerox 914 in that it is smaller, and also, the image of the original is projected directly to a sensitized sheet of paper, rather than a selenium drum.

Charles Bruning Co., Inc., also reports an electrostatic copier presently under development.

Facsimile

Facsimile: This process is basically a photo-electric one. Both the original material and the sheet on which the copy will appear are "scanned" simultaneously, and in synchronization. In most cases, the material to be copied is wrapped around a rotating drum. The copy sheet is wrapped around a second drum which rotates in synchronization with the first. A narrow light beam passes in a continuous track over the entire surface of the material to be copied. This light beam is reflected into a photo-electrical

It's an education in office copying to see all this Kodak copier can do!

Jobs you never thought an office copier could do are "apple pie" for the Verifax Bantam. It whisks out copies on both sides of a sheet . . . on printed office forms . . . even makes translucent whiteprint masters. Main job, of course, is to give you 5 dry, easy-to-read copies of office records in 1 minute for 2½¢ each. Copies which are as accurate and long-lasting as originals!

VERIFAX BANTAM COPIER

$99.50

Other models to $425

Phone local Verifax dealer for demonstration (see Yellow Pages under duplicating or photocopying machines), or write Eastman Kodak Company, Business Photo Methods Division, Rochester 4, N. Y., for booklet describing all copier models.

Prices quoted are manufacturer's suggested prices and subject to change without notice.

Verifax Copying **DOES MORE . . . COSTS LESS . . . MISSES NOTHING**

Kodak
TRADE MARK

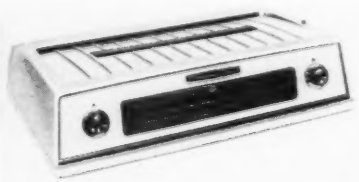
(Circle No. 19 on Reader Inquiry Card)

cell. There it generates a current which varies with the strength of the reflected light. The current thus generated is transmitted to the receiving unit of the machine where it activates a stylus which passes over the face of the copy sheet in synchronization with the original light beam. Through the stylus, the electric current "burns" the image onto the sensitized copy sheet. The machines are so designed that the current passing through the stylus produces dark areas which exactly correspond to those of the original material, thus producing a facsimile copy.

Diazo

Diazo: The diazo process utilizes a dye, formed by the interaction of two chemicals, to create the lines of which letters and drawings are made, and thus produce copies. The chemicals are a diazonium salt (or "diazo") and a combining element known as a coupler.

The diazo itself is affected by exposure to light; when it is exposed to light, it can no longer react to form a dye. In the copying process, the letters and lines of the material to be copied actually act as a light shield, so that the diazo is left active where lines and letters are to appear on the copy. This active diazo interacts with the coupler to form the dye. There are two basic methods used: In the first method, copies are made on a sensitized sheet, which contains both the diazo and the coupler. These chemicals are prevented from reacting by a third chemical, the "stabilizer." In the second method, the sensitized sheet contains only the diazo.



"Royfax" office-copier by Royal McBee Corp. can reproduce from any type of original up to 100 or more copies an hour.

New electrostatic photocopier by Savin Business Machine Corp. uses no lenses, and can reproduce on any type paper.

The sheet (covered by the original) is exposed to ultra-violet light just as in the first method. It is then brought into contact with a solution containing the coupler. The dye-forming reaction takes place as it does in the first method, producing the desired copy.

Stencil

Stencil: A stencil, the master used in this process, is a sheet of paper, plastic, metal, or other material, in which holes have been made, corresponding to the lines and letters to be reproduced. These holes allow ink, or another printing substance to pass through, thus creating a copy of the original on the paper or other material beneath the stencil. Conventional office stencils are designed so that letters and lines are not cut completely through the material. This is done so that the centers of letters, such as "o" and "g" will remain in place. Usually, the stencil has a fibrous or porous base, through which ink can pass easily. This is covered with a waxy coating, which prevents the passage of ink.

Offset

Offset: The offset process, as used in office duplicating equipment, is a simplified version of the printing process known as photo-offset lithography. Like that process, it turns out work of high quality; like that process it is based on the fact that oil, (or grease) and water do not readily mix. To use offset duplicating equipment, a master or plate must first be prepared. This may be made of paper, metal, or plastic. The desired material can be transferred to it with a typewriter (using an appropriate ribbon), or with any writing or drawing instrument which can produce the necessary greasy image. Offset masters may also be prepared photographically, or by such other copying processes as xerography, photocopy, verifax, diazo, and facsimile.

Whatever the method of preparation used, the resulting image appears on the master in the form of greasy lines which repel paper.

Spirit

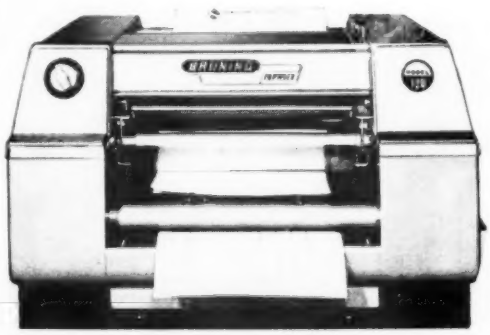
Spirit: The spirit process, sometimes referred to as the "fluid," "liquid," or "liquid hectograph" process, gets its name from the fact that it use alcohol as a solvent for the aniline dyes with which it prints.

While it is chemically similar to the gelatin process previously described, it employs a different mechanical system. As the first step in the process, a master must be prepared, using special paper with a special carbon face-up underneath it. When the material to be copied is typed, written, or drawn onto the master, its image appears on the back of that sheet, in the form of dye transferred from the special carbon. The image appears in reverse form. The master is placed around the rotating drum of the duplicating machine (some similar forms of duplicators use a tray on which the master is placed flat.)

As the drum rotates, a sheet of glossy copy paper is fed into the machine, and moistened slightly with a solution containing alcohol. When the paper meets the master, the alcohol solution serves as a solvent acting to remove a thin layer of dye from the master. This dye is deposited on the copy paper to make the final copy. As with the gelatin process, each copy is slightly fainter than the one before; however, with a properly prepared master, it is possible to obtain runs of several hundred copies.

Special liquid: The special liquid category includes the Azograph process (made by the A. B. Dick Co.), and the Columbia Transfer process (made by Columbia Ribbon & Carbon Mfg. Co., Inc. and formerly called Transograph). These processes are designed to produce

YOU'VE GOT TO HAND IT TO THIS MACHINE FOR COPYING VERSATILITY!



With Bruning Copyflex copying, you reproduce, from one original translucent form, all the different documents or copies necessary to complete a business operation — order-invoice, purchasing-receiving, production control, accounting, etc. Copyflex flexibility lets you add, block out, or change information on the original form, make copies of the revised form or any part of it as necessary. Copyflex originals can be used individually or incorporated in snap-out or continuous forms. Best of all for business systems or general copying, Copyflex copies cost only 1¢ each for materials for letter size. To suit your needs and budgets exactly, Bruning offers the widest range of copying machines and materials available today.

BRUNING *Copyflex*®

Charles Bruning Company, Inc. Dept. 1-K
1800 Central Road, Mt. Prospect, Ill.
Offices in Principal U. S. Cities
In Canada: 103 Church St., Toronto 1, Ont.

Please send me information on Copyflex for business systems and general copying.

Name_____ **Title**_____

Company_____

Address_____

City_____ **Co.**_____ **State**_____

(Circle No. 13 on Reader Inquiry Card)

copies with the ease and simplicity of the spirit process, but without the stain problem inherent in that process. Both processes are intended for the same type of work as the spirit process. In general, they sacrifice length of run for cleanliness of operation; it is assumed that standard runs will not exceed 100 copies by any great margin.

Relief

Relief: The relief process prints from embossed or raised letters, as does, for example, an ordinary typewriter or rubber hand stamp. The letters may be inked directly, as in the case of a hand stamp, or they may print through an inked ribbon, as does a typewriter. Most machines can use either method. Relief process equipment, for office use, generally prints from raised meta (or rubber) type, which is set by hand into channels on either a rotating drum or a flat printing head, depending on the design of the equipment.

This year has seen many new developments in the copying and duplicating fields. In 1960, Ditto, Inc., for one, unveiled its new Masterfax machine. This machine performs four fundamental office functions: (1) It will make direct (spirit) process masters; (2) It will make offset masters; (3) It will make facsimile copies; and (4) It laminates.

Masterfax, repeatedly, cleans up the master typing process, since no carbon is required during the typing or preparatory stage. Material to be duplicated is typed, written or drawn on a sheet; this is then inserted into the machine along with carbon to make a direct process master. In making offset masters, a paper mat is included with the original and carbon, and the assembly is placed into the machine. The operator then makes a dial adjustment and closes the top. Fifteen seconds later the master is ready for use to reproduce hundreds of copies on any offset machine. Direct process masters can also be made from original copy that is not prepared on Masterfax paper; masters may be made from newspaper clippings, correspondence, reports, and other material. As far as the third function, facsimile copying, is concerned, Mr. Ogden White, vice president of marketing at Ditto, states: "The process is completely dry and eliminates chemicals and toxic mixture; the machine can make facsimile copies on any weight or grade of paper including card stock, gummed labels and even on cloth.

Ditto's Masterfax makes spirit and offset masters, facsimile copies, and laminates.

New developments

F. G. Ludwig, Inc. has added a new 12-inch capacity photocopier to their line of equipment. Called the Contouramatic Mark III, the machine weighs 22 lbs. and is portable; it is also said to make photo-exact permanent black and white copies of any mark on paper including ball point pen, colored inks or crayons, spirit duplication, or rubber stamped copy.

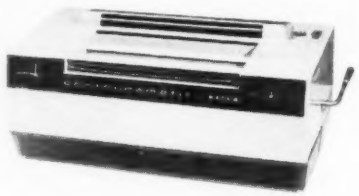
The Marsh Stencil Machine Co. has recently developed a machine called "Stencilmation" which cuts shipping stencils without an operator by means of a punched tape. The system is adaptable for various size stencil machines: ¼, ½, ¾, and one inch.

American Photocopy Equipment Co. recently announced their new unit, the APECO "Century." This new copymaker is described as inexpensive, efficient, and lightweight (12 lbs.). According to Samuel G. Rautbord, APECO president, the "Century" is expected to have wide appeal for large organizations who wish to provide photocopy facilities in many departments and locations, rather than in one, for greater efficiency. One of the more important features of the twelve pound unit is that the original document and copy paper are placed in direct contact with the exposure lamp, increasing exposure fidelity. The "Century" is also said to copy any document, regardless of original color, up to 8½ inches wide, in any length.

Also recently introduced is Cormac Photocopy Corp.'s new photocopier, the Cormac "300" with "Flo-tronic" control, an electronic device which automatically relieves the operator of all contact with chemical handling. The Flo-tronic, by means of a switch, automatically transfers the exact amount of developer needed for copying from cartridge to tray in the morning. At night, the same switch circulates the developer back to the cartridge. At the end of each cycle, it turns itself off automatically.

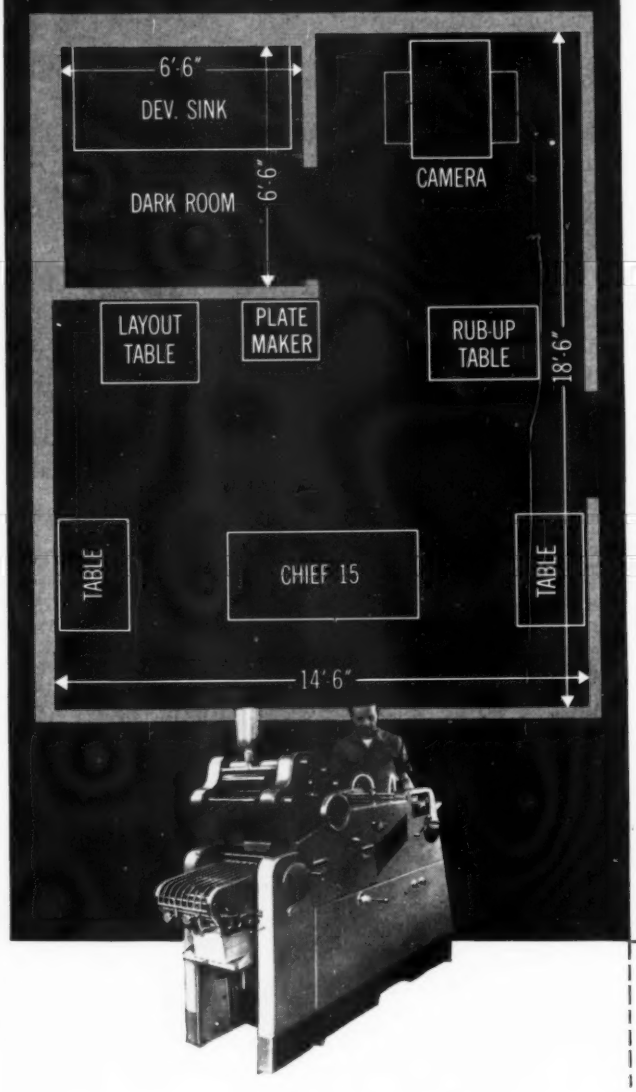
The Milo Harding Co. has a new Tempo Model 250DA Geha Stencil Duplicator with built-in automatic interleaver which permits feeding a variety of sizes and weights of paper and cover stock, plus eliminating smudging and spots of ink on the back of copies. Additional features are fully automatic and selective pin-point inking system, pneumatic paper stripper and lint remover, unbreakable toothed-belt drive, quick, inexpensive color changes. It also prints edge to edge up to 8½" wide and feeds postcards either way (no extra parts needed).

A new machine, said to be "the only dry photocopy device that uses no lenses which tend to go out-of-focus and smog," was recently developed by Savin Business Machine Corp. According to Paul Charlap, Executive Vice President of the firm, the "precision-built" machine is based on a radically new design. He states that electrostatic copies are made in ten seconds on a reflex rather than direct method, and as a result, the machine is capable of copying material from two sides of a page onto two sides of ordinary



Contouramatic Mark III photocopier by F. G. Ludwig, Inc. weighs only 22 lbs.

This profitable offset department can be YOURS for less than a dollar an hour!



For less than a dollar per *working hour*, you can purchase a complete ATF offset department, including: press, camera, darkroom sink, negative layout table, platemaker, and utility table. If you have some seldom-used equipment to trade in, chances are you will need little or no down payment.

Or you can lease the complete "package"—or any part of it—without trading in any equipment or making a down payment.

Either way, you get brand new equipment—and only what you need—on the easiest terms. You can pay as you go and make a profit as well.

Heart of this plan is the ATF Chief 15, the small press with the big press features...the press which has been chosen by over 1500 professional printers. You can see this press and the related "package" equipment in operation at your nearest ATF Branch Office; or your ATF Representative will supply full details, including a folder, "How to Set Up for Offset," which outlines various plans and choices of equipment. If you prefer, use the coupon below.

ATF

ATF Type Faces used in this advertisement: heads, Craw Clarendon; text, Bodoni Book; coupon, News Gothic Condensed.

American Type Founders, Dept. B
200 Elmora Avenue, Elizabeth, N. J.

I'm interested in your "Offset Package Plans" on a ☐ purchase ☐ lease basis.

Name_____ Title_____

Company_____

Street and Number_____

City_____ Zone_____ State_____

(If you have trade-in equipment, list descriptions, models, serial numbers)

American Type Founders

(Circle No. 4 on Reader Inquiry Card)

paper. The paper can be company letterhead or "paper offset plate" which can be transferred directly onto any standard offset machine to produce thousands of copies. The machine was introduced at the Fourth Annual International Visual Communications Congress held in Chicago.

Addressograph-Multigraph's new Multilith Offset Model 1000 produces 110 copies per minute. Among the machine's new features are: Simflow control of ink and moisture balance; high capacity vacuum feeder (1000 sheets), automatic blanket cleaner, sheet counter, overload clutch, and chrome plated cylinders. It may also be equipped with an automatic master clamp cylinder; an automatic platex applicator; an auxiliary ink coverage attachment; a work organizer; and a card feed magazine.

Copying and Duplicating Equipment

The following list includes the principal makers of office-type copying and duplicating equipment. Devices such as automatic typewriters and high-speed printers are included in more appropriate categories, such as Typewriters and Integrated Data Processing Equipment. ALSO SEE Microfilm Equipment.

The codes used in the last are as follows:

D—Diazo equipment.
E—Electrofax equipment.
F—Facsimile equipment, including models for stencil-cutting.
G—Gelatin equipment.
M—Microfilm equipment usable for making printed copies photographically.
MI—Miscellaneous.
O—Offset equipment of the office type.
P—Photocopy equipment.
R—Relief-type equipment.
SL—Special liquid process equipment.
ST—Stencil equipment.
T—Thermo-Fax equipment.
V—Varifax equipment.
X—Xerographic equipment.

Addo-X, Inc., 300 Park Ave., New York. (ST)

Addressograph-Multigraph Corp., 1200 Babbit Rd., Cleveland 7. (OR)

American Photocopy Equipment Co., 2100 Dempster St., Evanston, Ill. (P)

Anken Chemical & Film Co., 9 Hix Ave., Newton, N. J. (P)

Bohn Duplicator Corp., 444 Park Ave. South, New York 16. (SP; ST)

Charles Bruning Co., Inc., 1800 W. Central Rd., Mt. Prospect, Ill. (D)

Burroughs Corp., 6071 Second Ave., Detroit 32. (M)

Columbia Ribbon & Carbon Mfg. Co., Inc., Herbhill Rd., Glen Cove, N. Y. (G;SL;SP)

Copease Corp., 425 Park Ave., New York 22. (P)

Copycat Corp., 215 Park Ave. South, New York 3. (D;P)

Copy-Craft, Inc., 105 Chambers St., New York 7. (P;SP)

Copymation, Inc., 5650 N. Western Ave., Chicago 45.

Cormac Photocopy Corp., 80 Fifth Ave., New York 11. (P)

Dansen Co., Inc., Box 566, 101 Cooper Ave. North, St. Cloud, Minn.

Davidson Corp., Subsidiary of Mergenthaler Linotype Co., 29 Ryerson St., Brooklyn 5, N. Y. (O;R)

A. B. Dick Co., 5700 W. Touhy Ave., Chicago 48. (O;P;SL;SP; ST)

Diebold, Inc., Flofilm Div., P. O. Box 127, Norwalk, Conn. (M)

Ditto, Inc., 6800 McCormick Rd., Chicago 45. (O;SL;SP)

Duophoto Corp., 236 Fifth Ave., New York 1. (O;P)

Duplicopy Co., 224 W. Illinois St., Chicago 10. (SP)

DuPrints, Inc., 1502 S. Main St., Los Angeles 15. (SP;ST)

Durst USA, Inc., 1140 Broadway, New York. (M)

Eastman Kodak Co., 343 State St., Rochester 4, N. Y. (V)

Electronic Communications, Inc., Air Associates Div., Teterboro, N. J.

Filmsort, Div., Miehle-Goss-Dexter Inc., 50 S. Pearl St., Pearl River, N. Y. (M)

General Photo Products Co., Inc., 15 Summit Ave., Chatham, N. J. (P)

Gevaert Co. of America, Inc., 321 W. 54th St., New York 19. (O)

Gestetner Duplicator Corp., 216 Lake Ave., Yonkers, N. Y. (P)

Griscombe Products, Inc., 133 W. 21st St., New York 11. (M)

Haloid Xerox, Inc., 72-20 Haloid St., Rochester 3, N. Y. (M;X)

Hecto Products, Inc., 110 W. 17th St., New York 11. (G)

Heyer, Inc., 1850 S. Kostner Ave., Chicago 23. (G;SP;ST)

Hunter Photo-Copyist, Inc., 566 Spencer St., Syracuse, N. Y. (P)

Kenro Graphics, Inc., 25 Commerce St., Chatham, N. J. (O;MI-Process camera for offset negative;P;X)

A. Kimball Co., 444 Park Ave. South, New York 16. (R)

L & O Research & Development Corp., 134 N. Wayne Ave., Wayne, Pa. (F)

F. G. Ludwig, Inc., 66 Coulter St., Old Saybrook, Conn. (P)

Marr Duplicator Co., Inc., 53 Park Pl., New York 7. (ST)

Master Addresser Co., 6500 W. Lake St., Minneapolis 26. (SP)

Microfilming Corp. of America, 2 Llewellyn Ave., Hawthorne, N. J. (D;P;X)

Microlex Corp., 1 Graves St., Rochester 14, N. Y. (M)

Milo Harding Co., 500 S. Monterey Pass. Rd., Monterey, Calif. (ST)

Minnesota Mining & Mfg. Co., 900 Bush Ave., St. Paul 6. (T)

The Multistamp Co., 527 W. 21st St., Norfolk, Va. (ST)

Nord Mfg. Corp., 300 Denton Ave., New Hyde Park, N. Y. (P)

Old Town Corp., 750 Pacific St., Brooklyn 38. (SP)

Ozalid, Div. of General Aniline & Film Corp., Johnson City, N. Y. (D)

Paragon-Revolute Corp., 177 South Ave., Rochester 4, N. Y. (D)

The C. F. Pease Co., 3969 Rockwell St., Chicago. (D)

Peerless Photo Products, Inc., Shoreham, L. I., N. Y. (P)

Pekas Duplicator Co., Lock Box 306, Lesterville, S. D. (DT)

Pelprinter, Inc., 555 Central Ave., Orange, N. J. (D)

Photorapid Corp., 1420 Oregon St., El Segundo, Calif. (D;P)

Photostat Corp., P.O. Box 1970, Rochester 3, N. Y. (O;P-camera type;V)

Polychrome Corp., 2 Ashburton Ave., Yonkers 2, N. Y. (MI-adapter to make offset masters from Verifax)

The Print-O-Matic Co., Inc., 724 W. Washington Blvd., Chicago 6. (MI-Diagraphy method using special "inkless" compounds with stencils;ST)

Radio Corp. of America, Front & Cooper Sts., Camden 2, N. J. (E)

Recordak Corp., 415 Madison Ave., New York 17. (M;V)

Remington Rand, Div. of Sperry Rand Corp., 315 Park Ave. South, New York 10. (MI-Transcopy, Dexigraph, Plastiplate;P;ST)

Rex-O-Graphic, General Binding Corp., 1101 Skokie Hwy., Northbrook, Ill. (SP)

Rex-Rotary Distributing Corp., 387 Park Ave. South, New York 16. (F;SP;ST)

Robertson Photo-mechanix, Inc., 7440 Lawrence Ave., Chicago 31. (P)

Rovico, Inc., 318 Market St., Newark 2, N. J. (P)

Rutherford Duplicator Co., P. O. Box 13087, Houston 19. (ST)

S & M Distributing Co., Sip-O-Riter Products, 3875 Garland St., Wheat Ridge, Colo. (SP)

Savin Business Machine Corp., 161 Ave. of Americas, New York.

Speedliner Duplicator Co., 4404 Ravenswood Ave., Chicago 13. (SP)

Speed-O-Print Corp., 1801 W. Larchmont Ave., Chicago 13. (ST)

Standard Duplicating Machines Corp., 1935 Revere Beach Blvd., Everett 49, Mass. (SP)

Stewart-Werner Electronic, 1826 W. Deversey, Chicago. (F)

Technifax Corp., 195 Appleton Ave., Holyoke, Mass. (D;P)

Times Facsimile Corp., 540 W. 58th St., New York 19. (F)

Vari-Color Duplicator Co., 435 S. Lincoln St., Shawnee, Okla. (SP; ST)

Visirecord, Inc., 54 Railroad Ave., Copiague, L. I., N. Y. (SP)

Weber Marking Systems, Div. of Weber Addressing Machine Co., Inc., Weber Industrial Park, Mt. Prospect, Ill. (F;SP;ST;R)

The Western Union Telegraph Co., 60 Hudson St., New York 13. (F)

Whitin Machine Works, Whitinsville, Mass. (O)

Wolber Duplicator & Supply Co., 1201 Cortland St., Chicago 14. (SP;ST)

FILING EQUIPMENT AND OFFICE SAFES

If the creatures of planet X 2 suddenly made all filing cabinets on earth the only workable extensions of the business mind how many of your associates would be rendered incompetent? Fortunately, planet X 2 has no intention of pulling such a stunt, but what of the others?

Replacing a file folder in its proper sequence requires approximately as much intelligence as completing a short income tax form and the penalties are neither as complicated or severe. Whey then, is there so much waste due to haphazard filing?

A great deal of inefficiency stems from originally poor systems, not poor equipment, but the manner in which the equipment is used. A management consultant recently declared that "Four out of five file systems use staggered tab arrangements that are obsolete . . . and have been *obsolete* for 25 years." As a not-so-funny joke it has been said that if every large corporation and company had seriously cleaned their houses of excess filed paper in 1929 enough money would have been saved to soften the fall of the 1931 market.

How far fetched are the claims of savings when files are managed? The Second Hoover Commission Task Force for Paperwork Management reported $34 million dollars saved in two years as a result of action against records stimulated by the First Hoover Commission report; by shipping 165 tons of records to low-cost storage areas United Aircraft saved $27,600.

Management is needed

The maintenance of a proper record storage system requires management, and management that does not simply sit atop the *status quo* counting ball point pen supplies. Directive energy is needed to keep filing clerks abreast of their system, which, in some cases, amounts to having them do a job professionally; of creating a presence of mind that frees them from being drones, thus preserving their ability to make the system work for them. One such pert administrative director increased the efficiency of a filing clerk and emphasized the meaning of professionalism by mis-filing her paycheck in her own files. Although not recommended procedure for administrators, the moral of the story bears retelling if the filing system begins to sag. Slipping a piece of paper into a file drawer is neat practice but what of its retrieval?

Information retrieval projects consume millions each year in finding a suitable method of storing and retrieving document information quickly. Although vastly important in business, the swift return of information is of critical importance to areas of science in which the volume of information has increased disproportionately in the past few years. Current research in information retrieval can have as many ramifications for business as electronic data processing – a system that is actually eliminating paperwork.

Electronic data processing will not eliminate paperwork because it also creates paperwork, but many of the routine paper filing operations will disappear while others will change in method and appearance. In standard filing equipment the trend toward compactness of storage and quick accessibility continues.

Motorized files of the rotary drum or elevator type have been popular for several years and are

now manufactured in vertical models. The new Diebold Open Shelf Power File handles correspondence and legal size paper and can be purchased in 12, 14, or 16-shelf models. The vertical operation of the unit recaptures usually wasted overhead space. Records requested by the operator are brought automatically by the shortest route and stop in a convenient working position. The machine is carefully designed to eliminate possible accidents. If the operator should accidentally activate the machine the slightest pressure on a full-width "Safety Cable" stops the file instantly to prevent possible injury. If power is temporarily out the unit can also be operated manually.

The Electro Kardex is Remington Rand's mechanized version of their visible filing system. A seated operator pushes a button to reach any one of the 4,000 visible records within the unit. In approximately four seconds the tray containing the wanted record slides in place ready for posting. The unit is handsomely styled in a two tone combination of Surf Green and Mist Gray.

This tabulating card transport cart from Tab Products permits easy movement.

One of the latest new designs in filing apparatus is the Speedline model from Wassell Organization, Inc. A two-tier base of this system of "Filing-in-the-Round" equals the capacity of eight standard file drawers and occupies a floor area of 48 x 42 inches. By adding another modular Rotor-Tier the file can handle the capacity of 12 file drawers without a corresponding increase of floor space. A total of 24 full drawers of files can be accommodated in the original 48 x 42 inches of floor space by building a six-tier unit.

New open shelf filing unit from Republic Steel Corp. handles letter, legal sizes.

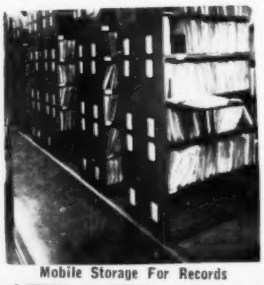
Circular files at which many people occupy positions resembling spokes of a wheel and draw information from a rotating hub have greatly increased efficiency of specific operations. This "Lazy Suzan" type of arrangement can be manufactured in a number of sizes to suit a particular operation. A unit recently installed in the air freight office of United Air Lines has a circumference of 40 feet and accommodates 10 workers. By pushing a button a worker can bring the information-bearing hub within reach. Another type "Lazy Suzan" rotary file is 7 feet in diameter and contains more than 125,000 record cards in five step-back tiers. Several employees may use the file — simultaneously due to independently rotating tiers.

A recent entry to the field of steel open shelf filing equipment is Republic Steel Corporation. Open shelf units from Republic are available in both legal and letter-size and may be adjusted on slotted dividers. Shelves may be added as desired. The units are also available with a single or double face.

Quite apart from the mass of filing equipment manufactured in steel are the single and double file drawers made of wood. More suited

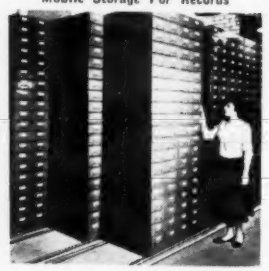
DOLIN STRETCHES SPACE AND BUDGETS

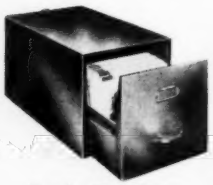
DOLIN—the most complete specialized line of budget stretching record storage equipment for every business need and the unique "wall stretching" DOLIN MOBILE STORAGE SYSTEM-the combination proven to be THE answer to storage and space problems in factories and offices throughout the country.
For further information on Dolin products and mobile storage "Ideas" write today.



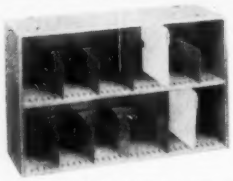
Mobile Storage For Records

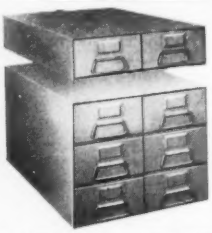
Mobile Storage For Supplies





Transfer Files-45 Sizes





Build-Up Shelf Files-4 Sizes

Low Cost Tab Card Files-6 Sizes

Double Duty Record Files

WRITE FOR LITERATURE
FREE LAYOUT SURVEY

MOBILE STORAGE DIV., DOLIN METAL PRODUCTS INC.
DEPT. MSOM, 315-17 LEXINGTON AVE. BROOKLYN 16, N. Y.

(Circle No. 17 on Reader Inquiry Card)

for the executive office in which a harmony of decor is wanted, the wood filing unit, by its nature and by virtue of the more artistic hardware used, does not resemble the more familiar type of work unit. The problem of swelling wooden drawers has been eliminated in many ways (treatment of wood, use of steel runners) and requires the ordinary service and care given a wooden table or chair.

There is no shortage of modern equipment with which to file any shape or form of data properly, from tabulating cards to business cards to punched tape. There does seem to be a shortage of knowledge and management success in making consistent savings through filing efficiency. Many administrators obviously rely on the safety of keeping the peace with Planet X 2.

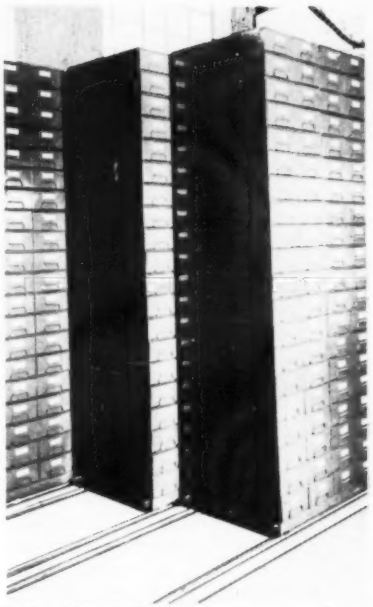
Filing Equipment

The following list includes the major manufacturers of various types of filing and record storage equipment. See also the list, which follows it immediately, covering office safes and protection equipment.

The code symbols used in the list are as follows:

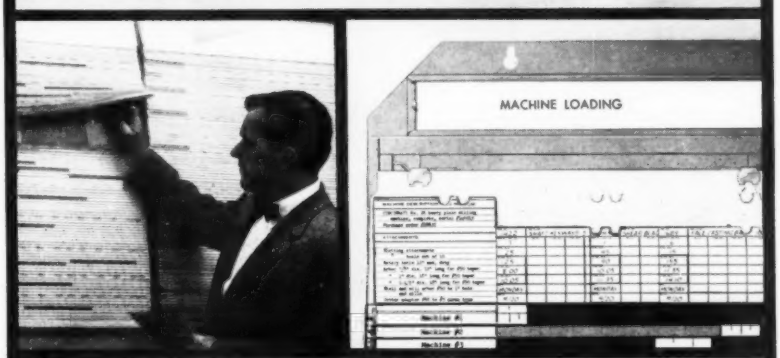
FC—Filing cabinets.
MI—Miscellaneous.
MS—Mobile storage installations in which storage units ride on tracks mounted on the floor or suspended from above.
RM—Rotary and mechanized files; similar equipment.
SH—Shelf filing equipment, including open- and closed-shelf types.
TC—Transfer cases.
VB—Visible record equipment, binder type.
VC—Visible record equipment, "vertical visible" type.

Ace Looseleaf Corp., 27 Bleecker St., New York 12. (VB)
Acme Visible Records, Inc., Crozet, Va. (FC;MI;RM;VC;VB)
The Acorn Products Co., 3750 N. Powell Ave., Franklin Park, Ill. (FC;TC)
All-Steel Equipment Inc., 100 Griffith Ave., Aurora, Ill. (FC)
Amberg File & Index Co., 1625 E. Duane Blvd., Kankakee, Ill. (MI-portable file boxes)
American Box & File Co., 6-18 Mangum St., S.W., Atlanta 2, Ga. (TC)
Art Metal Construction Co., 50 W. 44th St., New York 36. (SH; VB; VC)
Art Steel Co., Inc., 170 W. 233rd St., New York 63. (FC;MI-Blueprint files; VB; VC)
Atlantic Microfilm Corp., 28 Railroad Ave., Pearl River, N. Y. (MI-microfilm files)
Atlas Stencil Files Corp., 16716 Westfield Ave., Cleveland 10. (MI-Cabinets for offset plates, stencils, etc.)
Automatic File & Index Co., 549 W. Washington Blvd., Chicago 6. (FC;TC;V)
Bankers Box Co., 2607 N. 25th Ave., Franklin Park, Ill. (TC)
The Bentson Mfg. Co., 652 N. Highland Ave., Aurora, Ill. (FC)
Blair Aluminum Furniture Co., 104 Kennesaw Ave., Marietta, Ga. (FC)
Borroughs Mfg. Co., 3000 N. Burdick, Kalamazoo, Mich. (SH)
Brown-Morse Co., Muskegon, Mich. (SH)
Business Efficiency Aids, 8114 N. Lawndale Ave., Skokie, Ill. (MI-Visible records using magnetism)
Campro Products, Inc., P.O. Box 911 Canton 1, Ohio (FC)
Carteret Printing Co., 480 Canal St., New York 13. (VB;VC)
Cel-U-Dex Corp., 23 McArthur Ave., Newburgh, N. Y. (MI-Drawer dividers;SH)
Challenger Steel Products Corp., 350 Morgan Ave., Brooklyn 6, N. Y. (FC)



Dolin Metal Products, Inc., produces these low-cost, flexible filing units.

NEW LOW-COST WAY TO RAISE OUTPUT



Acme Visible Planning Panels make it easy to stay on top of your shop

Timing is the essence of high production at low cost. And Acme Visible Panels make it easy for you graphically to plan, schedule and follow through every job. Machine loading. Personnel assignment. Shipping. Data cards in pockets keep essential facts at your fingertips. Visible margins portray your scheduling and work progress at a glance. Send for full facts.

ACME VISIBLE

Acme Visible Records, Inc.
2101 West Allview Drive, Crozet, Va.
Please send free booklet on production planning and control panels.

NAME_____
COMPANY_____
ADDRESS_____
CITY_____ STATE_____

(Circle No. 2 on Reader Inquiry Card)

Ask about

BARKLEY

Open Shelf File Supplies

Open shelf filing is a "must" where space is at a premium for there are no space consuming drawers to be opened. Barkley open shelf file supplies make hundreds of files visible at one time; permit filing higher than eye level; permit using all the valuable floor space, and cost less to operate too. Ask us for complete information.

C. L. BARKLEY & CO.
Founded 1921 • All Phones MOnroe 6-7061
1220 W. VAN BUREN ST. • CHICAGO 7

(Circle No. 9 on Reader Inquiry Card)

RECORD STORAGE
At Lowest Unit Cost

For Inactive Records

Provide maximum protection at minimum cost. Highest grade corrugated fibre-board. All one piece —no parts to wear, get out of order. Single eyelet closure front and back provides quick, easy closing and opening—and absolute security. Labels factory applied, gummed titling strips with each box. 25 sizes. Sold by all leading stationers.

Send for **FREE** Manual of Record Storage Practice; complete products catalog. Clip ad to letterhead and mail to: Dept. OM-1,

BANKERS BOX COMPANY
Record Storage Specialists Since 1918
2607 N. 25th Ave., Franklin Park, Ill.

(Circle No. 8 on Reader Inquiry Card)

TOOLS OF THE OFFICE

Cole Steel Equipment Co., Inc., 415 Madison Ave., New York 17. (FC; SH;TC;VC;VB)

Columbia-Hallowell Div. of Standard Pressed Steel Co., Highland Ave., Jenkintown, Pa. (FC)

Convoy, Inc., 3424 Navarre Rd. S.W., Canton 6, Ohio. (TC)

Cook's, Inc., 207 Lakeview Ave., N.E., Blackwood, N. J. (VB)

Currier Mfg. Co., 2488 W. Larpenteur, St. Paul, Minn. (FC;MI; SH;VC;VB)

Diebold, Inc., 818 Mulberry Rd., Canton 2, Ohio. (FC;RM;SH; TC;VB;VC)

Dolin Metal Products, Inc., 315 Lexington Ave., Brooklyn 16, N. Y. MI-Tab card boxes; MS;SH;TC; VC)

Dresser Products, Inc., 1058 Broad St., Providence 5, R. I. (MI-Files for coded tapes; RM)

Dunbar Furniture Mfg. Co., Berne, Ind. (FC)

Durable Metal Products Co., 38-42 Review Ave., Long Island City 1, N.Y. (FC;MI-Roller files)

Elbe File & Binder Co., Inc., 649 Alden St., Fall River, Mass. (MI-Binder filing devices;VB)

Estey Corp., One Catherine St., Red Bank, N. J. (SH)

Evans Specialty Co., Inc., 2401 Venable St., Richmond 23, Va. (VC)

Frontier Mfg. Co., 11200 Harry Hines Blvd., Dallas, Texas. (MI-Vertical files, Map racks;SH)

The General Fireproofing Co., 413 Dennick Ave., Youngstown 1, Ohio. (FC;RM;TC;SH;VC)

General Steel Products Corp., 2 Park Ave., New York 16. (MS;SH;VV)

The Globe-Wernicke Co., Ross & Carthage Ave., Cincinnati 12, Ohio. (FC;MI-Desk-side files; SH; TC; VC)

Guide System & Supply Co., Inc., 335 Canal St., New York 13. (TC)

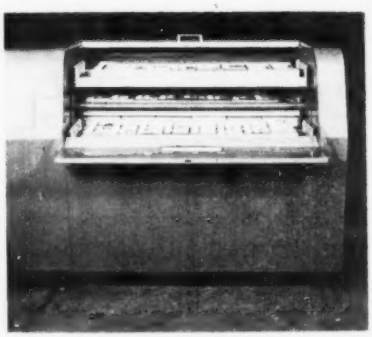
The H-O-N Co., Third & Oak Sts., Muscatine, Iowa. (FC;TC;VC; VB)

Hamilton-Skotch Corp., 11 E. 36th St., New York 16. (MI-Portable check files)

Harrison Steel Desk & File Co., 4718 W. Fifth Ave., Chicago 44. (FC;TC)

Haskell, Inc., P.O. Box 5273, Pittsburgh 6, Pa. (FC)

Open shelf power file by Diebold, Inc.



Mosler's Selectronic high-volume file.

Hedges Mfg. Co., 1441 Circle Ave., Forest Park, Ill. (TC)

Herring-Hall-Marvin Safe Div. York Safe & Lock Co., 2011 Mulberry Rd., Canton 2, Ohio. (RM;TC)

Hillside Metal Products, Inc., 262-270 Passaic St., Newark 4, N. J. (FC)

Invincible Metal Furniture Co., 842 S. 26th St., Manitowoc, Wis. (FC)

Jasin Mfg. Co., U. S. 31 at Michigan Ave., South Haven, Mich. (SH)

Jayem Sales Corp., 230 Fifth Ave., New York 1. (FC;MI-Personal files;RM;TC;VC)

LeFebure Corp., 716 Oakland Rd. N.E., Cedar Rapids, Iowa (FC; RM;VB;VC;VB)

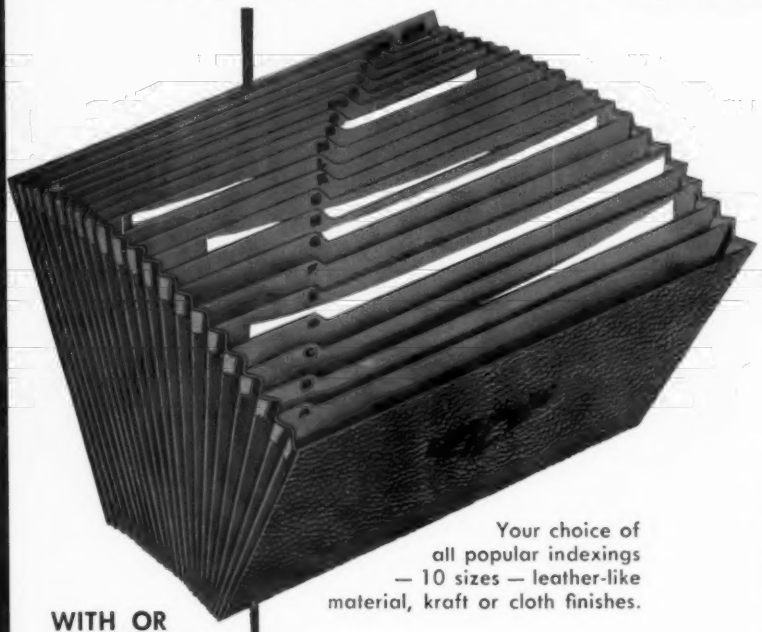
Lit-Ning Products Co., 170 N. Robertson Blvd., Beverly Hills, Calif. (MI-Hanging folder units;SH)

Luxco, Inc., 100 King St., La Crosse, Wis. (MI-Portable filing equipment)

Lyon Metal Products, Inc., 7933 Montgomery St., Aurora, Ill. (SH)

Master-Craft Corp., 831 Cobb Ave., Kalamazoo, Mich. (VB)

Smead 73 OFFERS YOU choices in VERTICAL AND EXPANDING FILES



Your choice of all popular indexings — 10 sizes — leather-like material, kraft or cloth finishes.

WITH OR WITHOUT FLAP

The Smead line of EXPANDING PRODUCTS encompasses the results of more than 50 years of experience in designing and producing filing containers. Every product has been field tested and proven. We believe our current line will cover every customer requirement for SPECIFIC USE and LONG WEAR.

A File to harmonize with the decor of any office.

Two-toned gray with an embossed leatherette finish.

WITH FLAP - ELASTIC CORD
A to Z - 21 POCKETS

3 Sizes	
NOTE	No. GR115AL
LETTER	No. GR117AL
LEGAL	No. GR119AL

EXPANDING PRODUCTS

EXPANDING PRODUCTS
DESIGNED TO EXPAND YOUR BUSINESS

Smead

File SMEAD POCKETS and WALLETS for Every Purpose

VERTICAL FILE POCKETS

Drop front style. Extra high 6½" gussets, one-third cut, one-fifth cut and two-fifth right position tabs. Guide height 10" high overall. Metal Tabs permit change in title inserts. 11¾" x 10" and 14¾" x 10", 1¾" and 3½" expansion.

Reinforced backs for sturdiness — many sizes — expansions and tab cuts.

YOUR CHOICE OF REDROPE OR LEATHER-LIKE MATERIAL

Five piece construction. Drop front, extra high 6½" gussets. Square or two-fifths cut. (Special tabbing available.) Redrope or cloth lined gussets. Reinforced back.

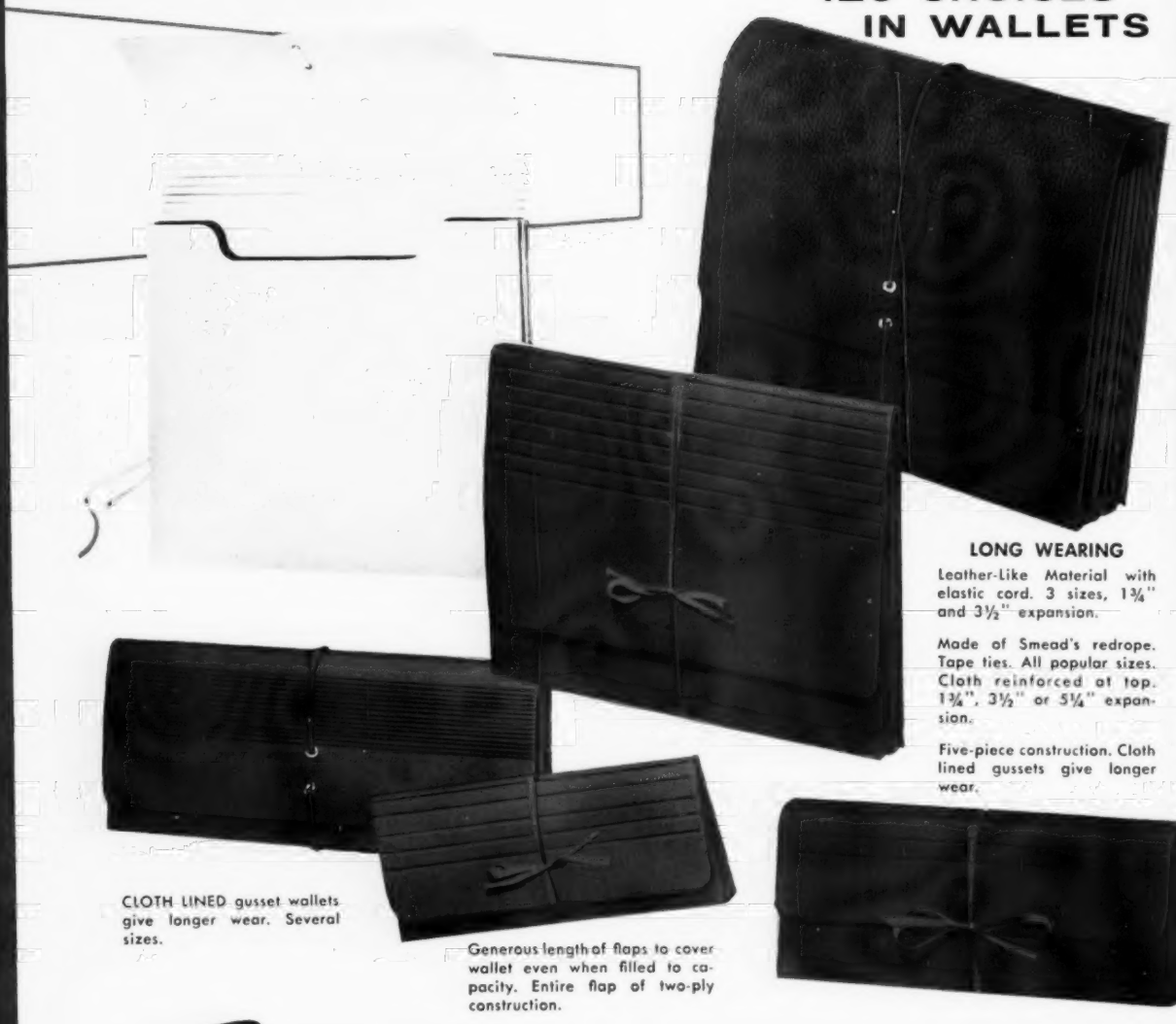
TABBED OPEN END FILING POCKETS

5-piece construction — reinforced with cloth at top of gussets. Straight front style 4" x 9¾" (8½" front) or 4" x 9½" (7" front).

TWO-PLI-TOP VERTICAL FILE POCKETS

Manilafibre or Redfibre. Heavy weight — one-piece construction. Thumb cut — reinforced tabs—space saver. Full length ½" tab. Letter and legal size.

MORE THAN 120 CHOICES IN WALLETS



LONG WEARING

Leather-Like Material with elastic cord. 3 sizes, 1¾" and 3½" expansion.

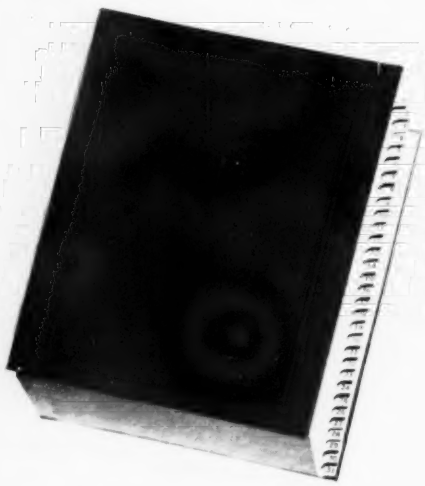
Made of Smead's redrope. Tape ties. All popular sizes. Cloth reinforced at top. 1¾", 3½" or 5¼" expansion.

Five-piece construction. Cloth lined gussets give longer wear.

CLOTH LINED gusset wallets give longer wear. Several sizes.

Generous length of flaps to cover wallet even when filled to capacity. Entire flap of two-ply construction.

Smart DESK FILES *for the* SMART DESK



DESK FILE
SILVR-BROWN TONED CLOTH COVERS

Morocco Grain with celluloid tabs.

A to Z — 20 Leaves
1 to 31 — Daily

BLACK PRESSBOARD, CLOTH OR SILVR-BROWN CLOTH

11¾" x 9⅞" or 15" x 10"

Smead desk files are perfect sorters or classifiers for top of desk or in drawer. Choice of alphabetical, numerical, daily, monthly, or blank for subject indexing. Metal tabs available.

VERTICAL FILE
(CLOTH)

A-Z indexing — 21 pockets. Draft, letter and legal sizes. Two-Ply fronts and backs are reinforced with extra heavy weight board. Divider sheets are Two-Ply top, glued full length.

EXPANDING FILES
Kraft and
Leather-Like Material

Expanding with flap. Heavy weight construction. A-Z indexing, 21 pockets. Jan.-Dec. indexing, 12 pockets. Daily 1-31 indexing, 31 pockets. Many sizes.

EXPANDING SUBJECT FILE
with elastic cord.

SF817, size 12" x 10", 6 pockets. 5¼" expansion, insertable celluloid tabs. Inserts of school subjects and blank inserts furnished.

VERTICAL FILES FOR CARDS
without flap

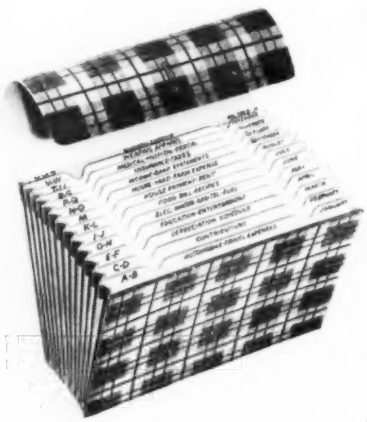
Leather-Like Material is beautiful, long-wearing. With heavy weight gussets, cloth reinforced at top. Available in 3 sizes, A-Z.

HOUSEHOLD EXPANDING FILES

SMEAD'S
Leather-Like Material

With Flap and Elastic Cord
Size 12" x 10"

This file has an expansion capacity of 23⅝". It has 11 alphabetical and 15 special printed partitions for income tax purposes. Each pocket has ⅞" capacity.



PLAID HOUSEHOLD EXPANDING FILE

With Flap and
Elastic Cord

Answers a specific need in any home for orderly filing of important papers. Its "1 Way" index is divided into 13 pockets. (1) alphabetically, (2) for income tax, and budget (3) monthly. Attractive plaid design of either the colors blue, maroon or green. 9½" x 7½" with long deep flap.

STUDENT'S CARD FILES

Expanding
With Flap
Thirteen
Pockets
Indexed A to Z
Two Letters on
Each Partition
3 sizes — 5" x 3"
6" x 4" — 8" x 5"

Smead MANUFACTURING CO.

HASTINGS, MINN.

CHICAGO ● LOGAN, OHIO ● LOS ANGELES

TOOLS OF THE OFFICE

Master Products & Mfg. Co., 3481 E. 14th St., Los Angeles 23. (SH; VB)

The Mayfair Co., P.O. Box 5705, Chicago 80. (TC)

McMillan Book Co., 701 E. Genessee St., Syracuse, N. Y. (VB)

Metalstand Co., 7520 State Rd., Philadelphia 36, Pa. (FC)

Midwest Metal Mfg. Co., 1818 N. 18th St., St. Louis 6. (FC)

Mim-E-O Stencil Files Co., 1221 W. Chestnut St., Chicago 22. (MI-Stencil filing units)

Mobile Racks, Inc., 369 Lexington Ave., New York 17. (MS)

Momar Industries, 4176 W. Montrose Ave., Chicago 41. (MI-Filing racks for blueprints;SH)

Monarch Metal Products, Inc., MacArthur Ave., New Windsor, Newburgh, N. Y. (SH)

Moore Business Forms, Inc., 900 Buffalo Ave., Niagara Falls, N. Y. (MI-Filing cabinets for accounts receivable)

The Mosler Safe Co., 320 Fifth Ave., (MI-File drawers;RM)

National Blank Book Co., P.O. Box 791, Holyoke, Mass. (VB;VC;VB)

Northwest Metal Products Co., 1337 E. Mason St., Green Bay, Wis. (FC)

Remington Rand Systems Division makes this mechanized visible filing system.

...even with 10,000 accounts,
she can find the one she needs
in a second-and-a-half!

VISIrecord's split-second record location feature makes it the world's fastest record keeping system. The speed and convenience of VISIrecord mean savings up and down the line—less manpower needed, less space required, less operator fatigue, greater accuracy.

Pictured is a machine posted accounts receivable operation—it could have been a hand posted, a purchase order follow-up, inventory control, maintenance control—any of a hundred other applications in large or small organizations, where records must be kept and used quickly and accurately.

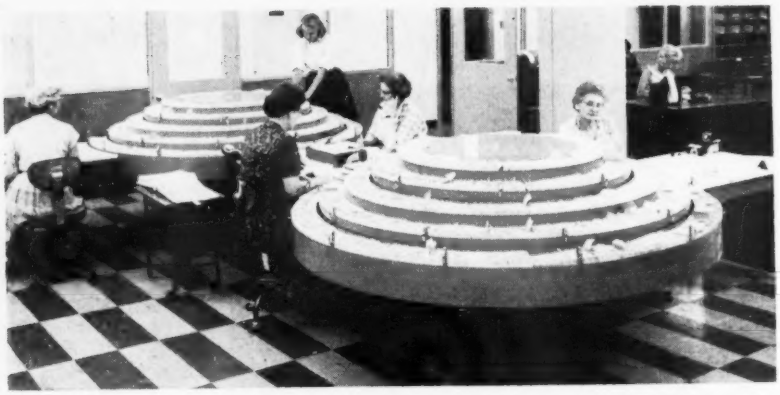
Your VISIrecord man will be happy to show you how you can apply speed to your record-keeping the VISIrecord way. Meanwhile, write for case histories and other data.

VISIrecord, inc.
375 PARK AVENUE, NEW YORK 22, N.Y.

VISIrecord

Systems Specialists in Principal Cities

(Circle No. 56 on Reader Inquiry Card)



Rotary file unit by Acme Visible Records accommodates more than 125,000 cards.

Office Equipment Mfg. Co., Inc., 2212 Summer St., Dallas. (TC)

Oxford Filing Supply Co., Inc., Clinton Rd., Garden City, N .Y. (MI - Hanging folders. mobile desk-side filing cabinets, desk drawers;TC)

The Paige Co., 114 E. 32nd St., New York 16. (TC)

Parker Steel Products, Inc., 54 N. 11th St., Brooklyn 11, N. Y. (TC)

Peerless Steel Equipment Co., Unruh & Hasbrook Ave., Philadelphia 11. (FC)

Plan Hold Corp., 5204 Chakemco St., South Gate, Calif. (MS;VB)

Pronto File Corp., 415 Madison Ave., New York 17. (TC)

Ramsey Co., 116 S. Seventh St., Philadelphia 6. (MS;SH)

Record Files, Inc., P.O. Box 581, Wooster, Ohio. (SH;TC)

Recordak Corp., 415 Madison Ave., New York 17. (MI-Microfilm cabinets)

The Recordplate Co., 130 N. Fair Oaks Ave., Pasadena, Calif. (MI-Portable loose-leaf, visible equipment;VB)

Remington Rand Systems, Div. of Sperry Rand Corp., 122 E. 42nd St., New York 17. (FC;MS;RM; SH;TC;VB;VC)

Republic Steel Corp., Berger Div., 1038 Belden Ave., N.E., Canton 5, Ohio. (FC;TC)

Royal McBee Corp., Westchester Ave., Port Chester, N. Y. (MI-Units to house firm's Keysort equipment)

Royal Metal Mfg. Co., 1 Park Ave., New York 16. (SH)

S-K Forms Co., 919 Walnut St., Philadelphia 3. (MI-File folders)

The Shaw-Walker Co., 1950 Townsend St., Muskegon, Mich. (FC; TC;VB;VC;VB)

The C. E. Sheppard Co., Div. of Yawman & Erbe, 1099 Jay St., Rochester 3, N. Y.

Speed - O - Print Corp., 1801 W. Larchmont Ave., Chicago 13. (MI-Stencil filing cabinets)

Stacor Equipment Co., 305 Emmet St., Newark 5, N. J. (MI-Blueprint files)

Standard Pressed Steel Co., Columbia-Hallowell Div., Highland Ave,. Jenkintown, Pa. (FC)

Stationers Loose Leaf Co., 246 E. Chicago St., Milwaukee 1. (VB)

Steel Furniture Mfg. Co., 15531 Arrow Highway, Baldwin Park, Calif. (FC)

Steelcase, Inc., 1120 E. 36th St., Grand Rapids 2, Mich. (FC)

Steel-Parts Mfg. Co., 4630 W. Harrison St., Chicago 44. (MI-Portable units)

Stow & Davis Furniture Co., 25 Summer St., N.W., Grand Rapids 2, Mich. (FC)

Strayer Coin Bag Co., Inc., New Brighton, Pa. (TC)

Supreme Steel Equipment Corp., 53rd St. & First Ave., Brooklyn 32, N. Y. (TC;SH)

Tab Products Co., 995 Market St., San Francisco 3. (SH)

Todd Co., Div., Burroughs Corp., 1150 University Ave., Rochester, N. Y. (VB)

Top Flight Products Co., Inc., 6224 S. Oakley Ave., Chicago 36. (MI-Single-drawer hanging files)

The Victor Safe & Equipment Co., Remington Rand Systems Div., Sperry Rand Corp., 122 E. 42nd St., New York 17.

Tract-A-File Div., Ramsey Co., 116 S. 7th St., Philadelphia 6.

Virginia Metal Products, Inc., Orange, Va. (SH)

Visirecord, Inc., Copiague, L. I., N. Y. (VB-Including portable units)

Visi-Shelf File, Inc., 225 Broadway, New York 7. (SH)

Vue-Fax Corp., 655 Main St., Westbury, N. Y. (VV)

Wassell Organization, Inc., 225 State St., Westport, Conn. (RM; VC;VB)

Watson Mfg. Co., Inc., 63 Taylor St., Jamestown, N. Y. (FC;SH; VC)

The Weis Mfg. Co., 514 Union St., Monroe, Mich. (TC)

Western Mfg. Co., 532 N. Highland Ave., Aurora, Ill. (FC)

Wheeldex & Simpla Products, Inc., 1000 N. Division St., Peekskill, N. Y. (MI-Portable card index file;RM)

Wilson Jones Co., 209 S. Jefferson St., Chicago 6. (TC;VB)

The Wright Line, Inc., 160 Gold Star Blvd., Worcester 6, Mass. (RM)

Yawman & Erbe Mfg. Co., 1099 Jay St., Rochester 3, N. Y. (FC;MI-Side-filing units;TC;VC;VB)

York Safe & Lock, 2011 Mulberry Rd., Canton 2, Ohio. (SH)

Zephyr American Corp., 95 Morton St., New York 14. (RM)

Safes and Insulated Storage Equipment

The following list covers the major manufacturers of safes and record protection equipment. The types of equipment offered by each company are indicated by the following codes:

F—Insulated filing cabinet.
S—Safes.
FR—Fire-resistive.
PU—"Point of use" record protection equipment, including ledger safes, insulated posting desks, and similar equipment.
MI—Miscellaneous.
FRE—Fire-resistive equipment.
FFR—Fire-resistive filing cabinets.
SFR—Fire-resistive safes.

Acme Visible Records, Inc., Crozet, Va. (FFR)

Acorn Products Co., 3750 N. Powell, Franklin Park, Ill. (MI-Insulated letter files)

R. C. Allen Business Machines, Inc., 678 Front Ave. N.W., Grand Rapids 4, Mich. (FFR;FR)

Art Steel Co., Inc., 170 W. 233 St., New York 63. (SFR)

John D. Brush & Co., 545 West Ave., Rochester 11, N. Y. (SFR)

Bentson Mfg. Co., 652 N. Highland Ave., Aurora, Ill. (MI-safe-desks and telephone cabinet-safes, fire-resistive)

Cole Steel Equipment Co., Inc., 415 Madison Ave., New York 17. (S)

Diebold, Inc., 818 Mulberry Rd., Canton 2, Ohio. (FFR;PU;FRE)

Dolin Metal Products, Inc., 315 Lexington Ave., Brooklyn 16, N. Y. (PU)

Ever Safe Co., Div. of Schwab Safe Co., Inc., Main & Earl Ave., Lafayette, Ind. (FFR)

The General Fireproofing Co., 413 Dennick Ave., Youngstown 1, Ohio. (FFR)

The Globe-Wernicke Co., Ross & Carthage Ave., Cincinnati 12. (FFR;PU)

Herring-Hall-Marvin Safe Co., Subsidiary of Diebold, Inc., 1550 Grand Blvd., Hamilton, Ohio. (FFR;PU;SFR;FRE)

Invincible Metal Furniture Co., 842 S. 26th St., Manitowoc, Wisc. (MI-Concealed Safe Unit placed in cabinets)

LeFebure Corp., 716 Oakland Rd., N. E., Cedar Rapids, Iowa (PU)

Meilink Steel Safe Co., Oakwood & Clinton St., Toledo 6, Ohio. (FFR;PU;FRE)

The Mosler Safe Co., 320 Fifth Ave., New York 1. (FFR;FRE)

Protectall Safe, Div. of Mosler Safe Co., 320 Fifth Ave., New York 1. (FRE)

Remington Rand, Div. of Sperry Rand Corp., 315 Park Ave. South, New York 10. (FFR;PU;FRE)

The Schwab Safe Co., Earl Ave. & Main St., Lafayette, Ind. (PU; FRE)

The Shaw-Walker Co., 1950 Townsend St., Muskegon, Mich. (FFR; PU;FRE)

The Victor Safe & Equipment Co., Inc., Remington Rand Systems Div. of Sperry Rand Corp., 122 E. 42nd St., New York 17. (FFR;PU;FRE)

Vue-Fax Corp., 655 Main St., Westbury, N. Y. (MI-Insulated vertical-visible equipment)

VISIrecord, Inc., Copiague, L. I., N. Y. (FFR;PU)

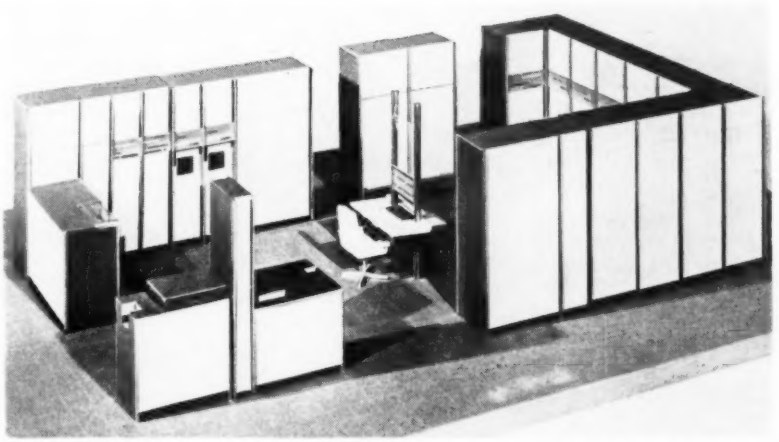
Watson Mfg. Co., Inc., 63 Taylor St., Jameston, N. Y. (PU)

York Safe & Lock, 2011 Mulberry Rd., Canton 2, Ohio.

INTEGRATED DATA PROCESSING EQUIPMENT

On December 8, 1960 both the Radio Corporation of America and Remington Rand announced that for the first time computer programs utilizing plain English have been successfully interchanged between data processing systems of different manufacturers. The report transpired after a two-day demonstration by the Remington Rand UNIVAC Division of the Sperry Rand Corp. and the RCA Electronic Data Processing Division before the Executive Committee of the Conference on Data Systems Languages (CODASYL), a government-sponsored group formed to achieve computer compatibility.

"The Executive Committee of CODASYL has witnessed an event which will be recorded as an important milestone in the progress of data processing," said Charles A. Phillips, Director of the Data Research Staff for the U. S. Defense Dept., who serves as Chairman of CODASYL. "The practicability of a Common Business Oriented Language (COBOL) as an effective programming language for business-type problems has been established beyond question. In these demonstrations two operating problems, one from a government agency and one from a large industrial company, were written by RCA and Remington Rand utilizing COBOL. Each program was automatically fed into the data processing equipment of the manufacturer that prepared the program. Then, with minor changes, it was automatically prepared for the other manufacturers equipment."



Latest data processing development is "thin-film" memory used in this Remington Rand Univac 1107 computer. Memory operates in "nanoseconds" (billionths of a second).

In the two-day demonstration, Remington Rand used the UNIVAC II at its Philadelphia Engineering Center. On the second day, the conference moved to the RCA 501 Systems Center at Cherry Hill, New Jersey, where instructions were fed into the RCA computer system.

The programs were interchanged by the two companies and were fed into the computers with slight modifications. The results achieved were the same whether a UNIVAC program was being handled by the RCA system or vice-versa.

Basically, COBOL is a programming system that employs simple

English words to instruct a computer—as opposed to the complicated machine code understood only by computer specialists. Reportedly, not only does COBOL serve to achieve compatibility between computers but the programming time can be cut in half.

How it operates

A compiling system operates in this fashion: The computer is programmed to accept nouns chosen by the user that are related to the business involved—for example, "payroll file," "wage," "employee number," or "tax." The computer also is programmed to accept some twenty verbs that serve as commands: 'Write," "read," "divide," "add," "display," or "move", along with conjunctions that link the verbs to the plain English nouns. The word "if" can tell the computer to make comparisons of data and execute logical decisions as a result of the comparisons. The English words are transferred to magnetic tape and fed into the computer for action.

Under the COBOL System, a computer order can be written "SUBTRACT DEDUCTIONS FROM GROSS GIVING NET." Under the strictly numerical programming system, the same instruction may be fed into the computer in this form: 72-010237-00-600000 and a pair of other numbers equally as long in the case of the RCA 501 or B00549 S00623 C00942 for the UNIVAC II.

Simple English instruction in COBOL system tells RCA computer what to do.

Arrangements for the RCA demonstrations were under the direction of Howard Bromberg of the Advanced Programming Section, while the Remington Rand UNIVAC operation was led by Dr. Grace M. Hopper, Chief Engineer, Research Automatic Programming.

In addition to Mr. Phillips, members of the CODASYL Executive Committee are: E. J. Albertson, United States Steel Corp.; J. F. Cunningham, United States Air Force; R. B. Churry, Southern Railway Co.; G. M. Dillon, E. I. du-Pont de Nemours; J. L. Jones, Air Materiel Command; A. E. Smith, U. S. Navy Bureau of Ships; J. H. Wegstein, National Bureau of Standards; and M. Gross, Standard Oil Co. of New Jersey.

IDP equipment

Addressograph-Multigraph Corp., 1200 Babbitt Rd., Cleveland 17. Multilith Offset Model 1278 is almost completely automated unit for magnetic ink character encoding, serially numbering, and personalizing blank checks; Addressograph Model 9302 Scanning Punch automatically scans bar code and punches tabulating cards; Graphotype Class 6700 operates automatically from common language perforated tape; Transfer Printed Model 831 is a unit which is able to pick an item at a time from vertically listed form, and reproduce this item on individual cards, envelopes, and similar unit forms.

Airborne Instruments Laboratory, Inc., Modao Div., Old Country Rd., Mineola, N. Y. Firm has produced line of Modac electronic data processing systems in the $100,000 price range, custom built, including computers and card-to-tape converters.

American Telephone and Telegraph Co., 195 Broadway, New York 7. (See Data-Phone, p. 70)

Ampex Data Products Co., Computer Products Div., 934 Charter St., Redwood City, Calif. Firm manufactures magnetic tape transport equipment, including heads and read-write-translator electronics for use as input-output devices in electronic computers and other specialized digital systems.

Anelex Corp., 150 Causeway St., Boston 14. Company manufactures a series of high-speed printers for readout from data processing systems. They print from magnetic tape, punched paper tape, or "on-line" from computers on any type business paper or form.

Two completely new series of high-speed printers have just been announced that retain the proven features of earlier models, but at greatly reduced prices. Accent is on simple operation, easy accessibility, and extreme reliability.

Two basic series are provided. One, the series 4-1000-SD, offers normal printing rate of 1,000 lines a minute of alpha-numeric characters and 2,000 lines of numeric characters. The second, the series 4-500-DD, (substantially lower in price) offers 500 lines a minute alpha-numeric and 1,000 lines a minute numeric. Normal length of line is 120 characters, although more or less can be supplied as needed.

Bendix Computer Div., The Bendix Corp., 5630 Arbor Vitae St., Los Angeles 45. Firm has manufactured G-15 general purpose digital computer in the $50,000 price class, designed for engineering and scientific work; also has business units using punched card and/or punched tape input. Special feature allows computation while input and/or output operations are in process. Alpha-numeric paper tape converter may be used for integration with system using five, six, seven, and eight-level codes. Under construction is the Bendix G-20 medium- to large-scale computer (basic system rents for $7,630 a month), the first of which is due to be delivered to Carnegie Institute of Technology later this month.

Burroughs Corp., 6071 Second Avenue, Detroit 32. Burroughs Corp. offers four electronic digital computer systems: desk-size E 101 and E 103, medium-scale 205, and intermediate-scale 220.

The E 101, which features simple, external pinboard programming, stores data on a 220-word capacity magnetic drum memory. Keyboard input may be augmented by 80-column cards and standard, commercial five- and eight-channel

paper tape. Output is to semi-ganged printer, with optional facility for paper tape.

The E 103 is more expensive ($29,750, as compared to the purchase price of $26,750 for the E 101), but is more applicable for business use. Either computer may be leased for $875 a month.

The Burroughs 205 is a medium-scale electronic data processing system. Input is through keyboard, punched cards, or perforated paper tape. Output is to electric typewriter, punched card, paper tape, or line printer. The general-purpose, decimal-digit 205 stores data and instruments on a 4,800-word magnetic drum. Auxiliary magnetic tape storage is available in up to 10-reel or multiple-tape Datafile units, in any combination. Maximum capacity of this magnetic tape storage system is 200 million digits. Applications for the 205 cover the complete range of commercial, engineering, and scientific computation problems. Purchase price for an average 205 system is around $250,000.

The Burroughs 220 is an integrated, general-purpose electronic data processing system that has a basic magnetic core memory of 2,000 words, which may be expanded to a maximum 10,000 words in increments of 1,000. Input is through paper tape (at 1,000 characters per second), punched cards, or keyboard. Output is to paper tape, card punch, line printer, or high-speed printer. The Burroughs 220 high-speed printer system will accept information directly from the 220 data processor, or it may be fed off-line from magnetic tape, at speeds up to 1,500 lines a minute.

Maximum magnetic tape system capacity is 500 million digits, with a maximum information transfer rate of 25,000 characters a second. Purchase price for an average Burroughs 220 system is about $500,000.

The Burroughs F5212 dual printer sensimatic is a new machine specifically designed for banks that allows simultaneous and original printing on a combined ledger and statement form with conventional bookkeeping equipment. It incorporates such features as automatic balances, multiple-total adding and subtracting, electric column selection, simplified data input, correction control, automatic four-digit check count and an automatic account counter.

New in the Burroughs MICR (Magnetic Ink Character Recognition) automation program for banks are the Burroughs Magnetic Character Sorter, which sorts checks at rates of more than 1,500 items a minute; and an electronic bank bookkeeping machine with automatic statement processing. Upon command from the bookkeeping machine, the selector electronically searches out any desired statement from a stack of statement forms placed in the selector feeding tray and inserts it into the carriage of the bookkeeping machine without human assistance. On completion of posting, it returns the form to a stacker in proper sequence.

Clary Corp., 408 Junipero St., San Gabriel, Calif. Firm has developed an electronic scanning printer that works directly from logical levels and has a keyboard for supplemental data entry. Called the Clary Model 1961, the scanning printer has 12-digit decoding and printing capacity for electronically controlled data from both decimal and binary-coded decimal sources. Typical application include missile checkout systems, engineering analysis equipment, electronic component checkout systems, and quality control evaluation stations. Also, the DE-60, a small-scale computer with input through punched card, punched tape, or keyboard. It has a magnetic drum memory unit, and its output is through punched card, punched tape, or printer.

Firm also has an electronic computing machine (ECM), which is a completely transistorized unit built into a standard office desk. Computations are performed by electronic unit in drawer section of desk. Results are printed automatically on adding machine-type print unit mounted flush with desk top. ECM consists of four desk-mounted units connected by cable-key entry unit, electronic computation unit, programming unit, and printing unit. Operations are performed by computation unit either under manual or program panel control. Present models provide for 30 program stops. It is priced at $15,000 f.o.b., San Gabriel. Certain of the company's standard adding machines and cash registers can be equipped to punch paper tape as a by-product of normal functioning. Clary also offers a variety of machines designed to read codes for automatic input to electronic systems.

Control Data Corp., 21 Steven Terrace, South Plainfield, N. J. Firm has large-scale computer called Control Data 160. Machine has magnetic core and magnetic tape memory units. Computer's input is through keyboard, punched tape, punched card, and magnetic tape. Output is through punched card, punched tape, magnetic tape, and printer.

Copy-Craft, Inc., 105 Chambers St., New York 7. The Ormig selective data printer is a machine that selects, eliminates, condenses, and shifts lines, columns, and headings from one master without masks, blockout, strip masters, or shingled forms. It produces, from a given master, all information on that master, or selected data condensed on single item tickets. Machine advances automatically from line to line. Job tickets, each of which describes a different operation and bears certain data common to the entire job, may be produced in tailor-made series.

The new Ormig electronic performs the same function as the selective data printer, and allows the selection electronically from a master of any number of lines in any combination desired.

Cummins-Chicago Corp., 4740 N. Ravenswood Ave., Chicago 40. Company has manufactured Perf-O-Data equipment, which encodes documents by perforation. The Perf-O-Reader (character-scanning unit) scans the perforated characters by means of a photoelectric reading device. Other equipment includes an auxiliary keyboard, which provides for manual entry of variable information or corrections.

Dage Television Div., Thompson Ramo Wooldridge, Inc., Michigan City, Ind. Firm has made line of closed-circuit television equipment, which is used in some automatic systems to speed exchange of

visual information, as in verifying signatures on documents.

New Dial-Data system provides instantaneous access to visual data. Heart of system is a "data console" equipped with a special closed-circuit TV camera. Console contains a rack that holds 25 slide frames of records, files, information, sheets, schedules, and other constantly changing data. Automatic dial equipment determines which frame is placed before the camera, and what information is sent over the system. Individual dials at each monitor permit the user to dial for visual information as easily as making a telephone call. "Dial-Data" system installations begin at $15,500.

Dashew Business Machines, Inc., P. O. Box 78216, Los Angeles, Calif. The firm has manufactured equipment providing original entry of data into automatic systems. Dashaplate, a basic source of data, is an embossed plate of metal or plastic carrying basic information. Plates can be created at rate of 6,000 an hour by Databossers (controlled by punched tapes or cards), or manually on Datatypers.

Datamatic Div. of Minneapolis-Honeywell, 60 Walnut St., Wellesley Hills, Mass. Firm's Honeywell 400 provides all the capabilities of a full-scale electronic data processing system at a basic cost of less than $8,000 a month. It utilizes the same high-speed peripheral equipment and magnetic tape units as the Honeywell 800. (See listing under Minneapolis-Honeywell.)

Dennison Mfg. Co., 300 Howard St., Framingham, Mass. Firm has Print-Punch marking machines, which are used to prepare merchandise tags for subsequent automatic processing. The machines punch basic merchandise data in four- or five-channel code, and simultaneously print information (such as size, price, style number, etc.) that can be read easily by customer and sales clerk. Printing and punching rate is 200 slugs a minute.

Allen B. Du Mont Laboratories, Inc., 750 Bloomfield Ave., Clifton, N. J. Although not IDP equipment, the Du Mont line of closed circuit television has applications in data handling systems since it can provide instantaneous visual transmission of information. The line includes a variety of components designed to be integrated interchangeably into the system.

Digitronics Corp., Albertson Ave., Albertson, L. I., N. Y. Company's Dykor Model D104 bi-directional tape converter speeds the flow of data between remote stations and a central computer installation. Paper tape data is introduced into the D104 converter by a Dykor photoelectric reader that operates at 300 characters a second. Magnetic tape is read or prepared in a form completely compatible with the computer it is to feed.

Model 3500 Dykor photoelectric reader is a completely solid-state unit which stops before the next character at reading speeds of 1,000 characters per second.

A new bi-directional, high-speed perforated tape reader designated Model B3500 operates on loops or strips of tape. A bi-directional spooler is available at speeds up to 300 characters per second, with eight-inch reels. Part of the completely transistorized circuits are two flip-flops which provide reliable control of the four solenoids used to control start and stop in either direction. The B3500 enables high-speed search and then reverses to the beginning of the block which can then be read in its entirety.

The D300 is Digitronics' latest all-solid state data converter. In addition to tape-to-tape conversion, the D300 series can also have card input and card output. This new series in the Digitronics line enables the user to specify only those features that he requires.

Another Digitronics innovation is the "Dial-o-verter" data transmission system, which uses the Bell System's Data-Phone 200 to send and receive over telephone lines. Heart of the system is the Digitronics new Model D599SR coupler, which forms the inter-connection with such media as paper tape, punched cards, or magnetic tape.

Eastman Kodak Co., 343 State St., Rochester 4, N. Y. The Kodak Minicard System is an ultra high-speed information handling system that records documents, pictures, or other information photographically on tiny pieces of film about the size of a postage stamp. Through the use of electronic controls, the Minicard system can be utilized to retrieve any desired information by searching the Minicard film records automatically at speeds of up to 1,000 frames a minute. New system combines advantages of microfilm, punched cards, and digital computing techniques.

Electronic Associates, Inc., Princeton Computation Center, Long Branch, N. J. Company has made analog computers, designed primarily for scientific and engineering work. The Dataplotter takes data from punched cards or punched paper tapes and plots this information in continuous-line graphs.

Electronics Corp. of America, 77 Broadway, Cambridge 42, Mass. This company has produced a series of Magnefiles, desk-size electronic units, for maintaining perpetual inventory information with various inputs.

Farrington Mfg. Co., Industrial Center, Needham Heights, Mass. Company has general and special purpose high-speed, optical-scanning (alpha-numeric readings) machine; it also offers associated identification and imprinting equipment for commercial data handling application.

Ferranti Electric, Inc., 30 Rockefeller Plaza, New York 20. Company has high speed tape readers with speeds of 200 and 400 characters a second which are used to convert codes in punched tape for input to computers and for similar uses. Tape reading and control are accomplished by photoelectric means. Friction drive is used. New high speed tape reader type TR7 is self-contained, free standing unit capable of "reading" 5-, 7-, or 8-level tape at any speed up to 1,000 characters per second. A fast rewind is also provided giving less than 30 seconds rewind time for 1,200 feet of tape. Reader operates under either computer or manual control, and will read character by character at high speed. Unit includes spooling, photo-sensing head, amplifiers, control circuits, and power supplies, all fully transitorized. Special feature is built-in checking facility.

Company has also manufactured

two electronic computers (intended primarily for scientific work).

Fisher & Porter Co., Hatboro, Pa. Firm has made a line of data reduction equipment for industrial application, used for readout from manufacturing process.

Wm. A. Force Co., Inc., 216 Nichols Ave., Brooklyn 8, N. Y. Firm has made a numbering machine for electronic data processing which prints dots, dashes, or specially shaped figures instead of conventional numerals. Code markings representing serial numbers are printed on documents like checks, order forms, and other commercial papers processed by electronic scanning. A Convex five-channel tape coder is used on rotary printing presses to print dots corresponding to consecutive serial numbers, simulating five-channel tape. The codes are intended for use as inputs to IDP systems.

Friden, Inc., 2350 Washington Ave., San Leandro, Calif. Company manufactures Friden Flexowriter, an automatic writing machine. Latest models operate automatically from tape, edge-cards, or tab cards, and produce one or more by-product tapes or cause simultaneous punching of tab cards. Model CTS Computyper is an automatic billing machine, tape-operated and tape-producing. It also reads and causes simultaneous tab card punching. Machine has interchangeable program panel and actuator racks, and requires only a typist for operation. Selectadata is a tape-reader-selector-sorter which swifty searches punched tape for pre-determined data, then causes readout by Flexowriters or Computypers. In an automatic billing application, for example, Selectadata may select and cause printing of date, order number, and individual items. Another billing machine, Model B Computyper, is operated by typist, and takes price and quantity inputs from keyboard, computes and prints results automatically. Teledata is a tape transmitter-receiver with built-in accuracy check for five-, six-, seven-, or eight-channel tape transmission. It is used at the ends of communication channels to transmit coded information contained in a punched tape to a location where an identical tape is repunched.

General Dynamics, Stromberg-Carlson Division, 1895 Hanson St., San Diego 12, Calif. Firm has S-C 5000 Series of High-Speed Electronic Printers. S-C 5200 Registration Printers are specially designed for commercial applications requiring close tolerance registration of computer data on preprinted forms. Prints up to 5,000 lines per minute.

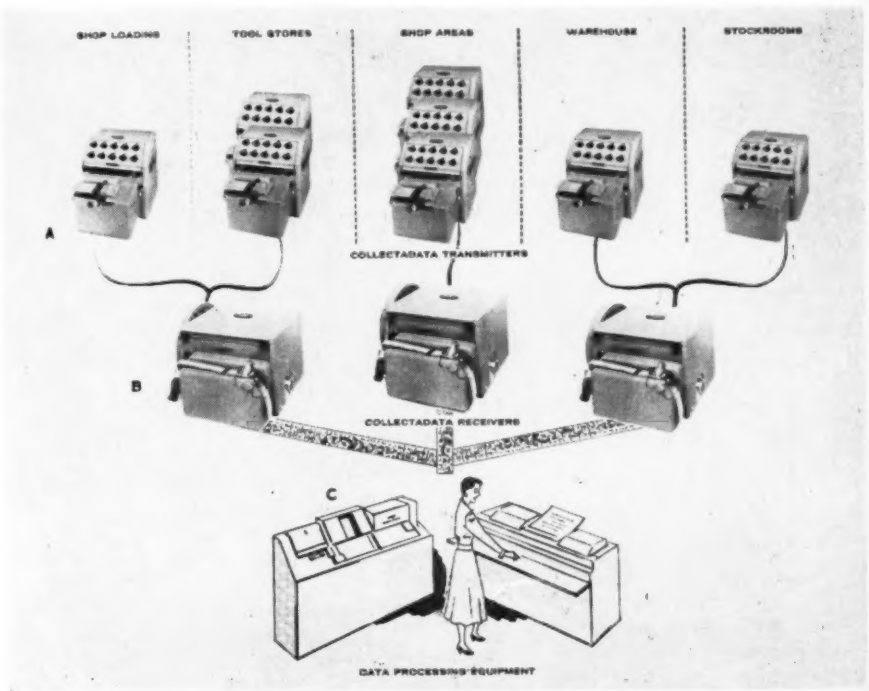
General Electric Co., Computer Dept., Phoenix, Ariz. Company has developed the GE 225 information processing system. Company also has GE 210 data processing system. Also recently developed is the 312 control system for data processing. Unit uses punched paper tape input and electric typewriter output.

Haloid Xerox Inc., 6 Haloid St., Rochester 3, New York. Print-out systems are available which make use of the xerographic process and Stromberg-Carlson's Charactron shaped beam tube. The SC-5000, as it is called, can print at the rate of 10,000 characters per second from on or off-line signals or from light transmissions.

Xerox Copyflo 11 printers are available which, from original documents or microfilm, produce at the rate of 20 feet of print per minute, an 8½ x 11-inch print in less than three seconds. A Copyflo 24-C continuous printer is also available which prints from individual frames of microfilm mounted in data processing (EAM) cards. Prints up to 24 inches wide are produced at the rate of 20 feet of print per minute. Prints emerge dry, ready for immediate use.

Intelligent Machines Research Corp., Subsidiary of Farrington Manufacturing Co., 7019 Edsall Rd., Alexandria, Va. Firm has produced equipment which reads printed characters, both alphabetic and numeric.

Intelex Systems, Inc., 67 Broad Street, New York 6. Company is associate of ITT engaged in providing systems for the electronic control of repetitive clerical processes, and supplying input and output equipment for data processing systems, such as high speed teleprinters, tape punches, electromechanical and photo-electric tape readers. The new light-weight Creed Model Seventy-five Teleprinter operates at 100 words per minute. It is generally used as



Friden peripheral equipment gathers data from remote points for swift central processing.

an input and output device for integrated data processing systems.

Creed Model 3000 Punch is an ultra high-speed paper punch for direct recording of five to eight tracks of output computer digital information at speeds of up to 300 characters per second—3,000 words per minute. The punch operates on a multiwire start-stop basis incorporating revertive signalling arrangement for input control.

International Business Machines Corp., Data Processing Div., 112 E. Post Rd., White Plains, N. Y. IBM produces and markets a complete line of punched card data processing machines and electronic data processing systems in various sizes and types. Punched card equipment includes card punches, sorters, interpreters, verifiers, collators, reproducers, accounting machines, and auxiliary equipment such as card-to-tape and tape-to card converters. Also included in the product line is a series of electronic data processing systems in a complete range of capacities for scientific and commercial applications. Also, statistical machines, paper tape processing machines, card transmission equipment, and equipment designed to fulfill specific data processing needs.

IBM's 609 is a small scale, solid-state, completely transistorized calculator. It has 240 positions of magnetic core storage and 80 program steps which can be increased in increments of 16 to 384 positions of storage and 144 program steps.

The 1620 data processing system is a small scale, stored program computer designed for scientific research, engineering and management science computations.

OM-AB staffer Rhea (left) observes IBM 1418 optical reader at Endicott, N. Y.

IBM 650 data processing system for general-purpose computation uses punched card input and output. Additional units can be incorporated to provide magnetic tape input and output, printer output, paper tape input, magnetic core storage, and disk storage with random access and direct interrogation.

IBM Ramac 305 is medium-scale computer with magnetic disk, magnetic drum and magnetic core memory units.

IBM 1401 data processing system has a solid-state computer of great flexibility for business. It may be operated as an independent system in conjunction with IBM punched card equipment, as auxiliary equipment to IBM 700 or 7000 series systems, or as check processing system in conjunction with IBM 1210 Model 4 Reader-Sorter. It features a new concept in high-speed printing, employing an endless chain of engraved type which moves across the face of business documents at a rate of 600 lines per minute.

Recently added to the IBM 1400 series is the 1410, an intermediate computer which shares many of the same "building block" units with the 1401, including disk storage and input-output devices. The character transfer rate of the 1410 in memory is 4.5 microseconds; the system can perform a maximum of 1,800,000 logical decisions, 600,000 additions or subtractions, or 40,000 divisions a minute. The computer is also equipped with a second data channel on which processing can be carried out independently from operations on the first channel. Synchronizers available with the 1410 allow a complete overlapping of reading, writing, and computing.

IBM's large data processing systems include the 704; 705; 705III; 709; 7070; 7074; 7080; and 7090.

Company's computing systems of the Stretch class can complete more than 75 billion arithmetic operations a day, executing as many as two million instructions per second. Systems contain a "look ahead" device which anticipates instructions and data requirements.

Series 1200 character sensing equipment is new electronic system for the automatic handling of bank checks. Equipment makes use of an Arabic character "common language" which can be read by both men and machines.

Also, Tele-Processing equipment; 1009 Data Transmission Unit; Data Transceiver; 1001 Data Transmission System; 7701 Magnetic Tape Transmission Terminal; and 357 Data Collection System.

One of IBM's latest contributions to data processing is an optical reading machine that reads numeric characters directly into a computer memory, thus eliminating, to some extent, the input bottleneck. The machine—the 1418 optical character reader—reads two lines printed in an IBM type font from a document about the size of a bank check. Similar to the Farrington process, the 1418 reads and sorts documents at a maximum rate of 24,000 an hour and ranges in price from $2,600 to $3,000 a month. IBM is promoting the use of this system in retailing, insurance, public utilities, and government.

International Telephone & Telegraph Corp., 67 Broad St., New York. Firm has communications facilities; also, an automatic system for processing bank checks, performing deposit accounting, and related reporting and analysis functions. A recent development is the Speed Mail system of automatic mail transmission.

The Jacobs Instrument Co., Bethesda 14, Md. Firm has made electronic digital computing equipment.

A. Kimball Co., 444 Park Ave. South, New York 16. Company manufactures the "75" Punch Print Machine for encoding as many as 29 columns of punched and printed data into tickets and tags to serve as automatic input for punched cards and punched paper tape, and as input for integrated data processing systems. Kimball Portable Punch is slide-set, and is used for encoding 12 additional columns of variable data in the Kimball Punch Print Ticket. Tag Reader Model KRB converts print-punch tickets at the rate of 100 per minute to standard size tabulating cards for further processing.

Kleinschmidt Laboratories, Inc., Div. of Smith-Corona Marchant, Lake Cook Road, Deerfield, Ill.

The company produces a line of teletypewriting equipment for use in communications. The TT-195 High Speed Typing Reperforator punches and prints on paper tape at the rate of 750 words per minute, or 75 characters per second. It is used for receiving coded communications. The firm's line includes teleprinters, transmitting units, typing perforators, and accessory switching and selecting equipment.

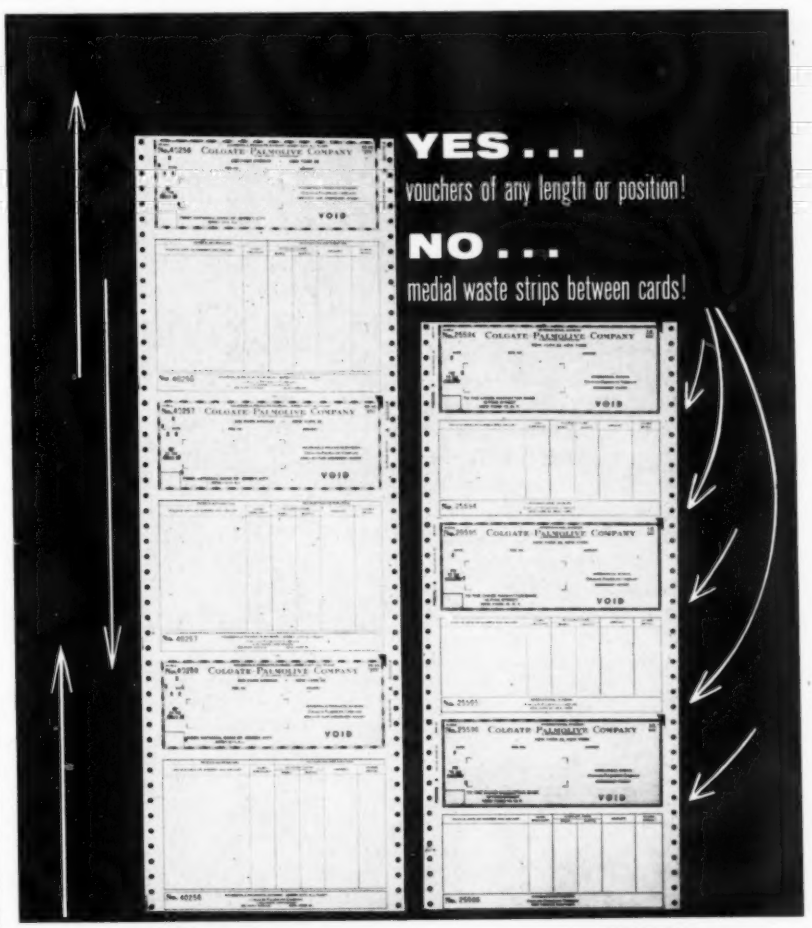
Laboratory For Electronics, Inc., 1079 Commonwealth Ave., Boston 15, Mass. Firm has new data storage and display system, called Rastad. The system can store, retrieve, and display information almost instantaneously. System consists of from 1 to 33 high density magnetic file drums containing 300 tracks on each drum, a symbol generator which simultaneously generates each of the alpha-numeric and abstract characters required in report, map, chart, and other abstract displays, a master viewer and central console plus as many associating viewing consoles as required, and the necessary associated electronic controls and power supplies. Each file drum has a storage capacity of 1.7 million alpha-numeric characters, giving a 33 drum system a total storage capacity of some 55 million alpha-numeric characters.

Librascope, Inc., 1607 Flower St., Glendale 1, Calif. Company has manufactured a small electronic computer.

Litton Industries, 336 N. Foothill Road, Beverly Hills, Calif. This company has made small electronic calculators and other equipment.

Minneapolis - Honeywell Regulator Co., Datamatic Division, 60 Walnut St., Wellesley Hills 81, Mass. The Honeywell 800 is a medium-scale (expandable to larger scale) data processing system, consisting basically of a central processor, console, five magnetic tape units, a printer, and a card reader. The all-transistorized 800 is a compact, versatile, and competitively priced system which processes a number of jobs simultaneously—each independently programmed and automatically controlled. Automatically controlled parallel processing, as it is called, is particularly suited to distribution of premium payments, payroll accounting, inventory control, stock transfer accounting and many other data processing routines pertinent to insurance, industry, and banking. System accommodates all types of input equipment although major input medium is punched cards. Central Processor (heart of system) utilizes multi-function instructions and operates at a speed of 30,000 three-address operations per second. It is specifically designed to attain high speeds for sorting, merging, and file maintenance procedures. System features Orthotronic control, a method of automatic record protection. The system can carry simultaneously both data processing and scientific computation.

The Honeywell 400 provides all the capabilities of a full-scale electronic data processing system at a basic cost of less than $8,000 per month. It utilizes the same high-speed peripheral equipment and magnetic tape units as the Honeywell 800, and it is fully compatible



FORMSCARD

the original and only workable continuous tab card with maximum efficiency

- Pre-punched as required
- Tabulate at any speed
- Separate manually or on any burster
- Can be part of a multiple forms set

Call or write for samples and detailed information **Forms inc**

WILLOW GROVE, PA. • Phone: Oldfield 9-4000

Manufacturers of line-hole continuous business forms Sales representatives in principal cities.

(Circle No. 57 on Reader Inquiry Card)

with the larger, more powerful system.

High tape speeds and multi-function instruction make the Honeywell 400 particularly adept at high-speed sorting and file maintenance, the most basic functions of data processing.

An automatic program called EASY simplifies and speeds programming, and programs written in EASY language can be run on both Honeywell 400 and Honeywell 800 systems.

Monroe Calculating Machine Co., 555 Mitchell St., Orange, N. J. SynchroMonroe is a data processing machine which simultaneously punches tape or cards as a by-product of regular accounting jobs such as payroll, accounts payable, accounts receivable, savings passbook posting, stock record, or general ledger. A control chassis contains a simple plug-board arrangement allowing the machine to be programmed in the user's office, should a change in punching requirements arise. A choice of five-, six-, or seven-, or eight-channel tape is offered, or direct connection to an IBM 024 or 026 card punch. Machine is designed for flexibility and adaptability to changing needs.

Monrobot IYLX is desk-size electronic computer designed primarily for billing applications; however, it may be programmed to perform other applications. Price is $9,650; equipment may be leased.

Monroe Distributape System is electronic accounting system designed to speed the accumulation, distribution, and analysis of data for retail stores.

Monrobot Mark XI is said to be first solid-state general purpose electronic computer in the $25,000 price range. The computer can handle more than 40 jobs, is fully transitorized, operates from any AC wall outlet and requires no air conditioning. Price is $24,500; Monrobot XI weighs 300 lbs., is said to be equal in versatility and performance to costlier machines. Equipment may be rented or leased from the manufacturer.

Also, small scale computer, Monrobot IX, with magnetic drum memory unit and keyboard input.

Synchro-Monroe adding machines are equipped to provide a punched paper tape completely automatically as a by-product of the regular operation of a standard full keyboard adding machine. Tape can be processed directly into a computer, converted to punched cards or transmitted over teletype wires to a central processing center. Synchro-Monroe direct-to-card adding machines transfer data directly to punched cards.

The National Cash Register Co., Main & K Sts., Dayton 9, Ohio. NCR offers IDP equipment of several types. New Class 31A is latest machine in NCR line of accounting equipment. It has electrically controlled mechanisms for determining and initiating the proper posting program of automatic machine operations. This feature can eliminate the need for an operator to compare a customer's balance and payments to determine whether he should or should not be mailed a past-due statement. Similarly, the feature can automatically decide that an inventory item should or should not be replenished. The feature can automatically verify the accuracy of balance pickups, cause the pickup errors to be automatically cleared, and the carriage automatically repositioned for making the pickups again. It also features automatic totaling, subtotaling, repeat or date printing, and so on, as the carriage moves in either forward or reverse direction; increased number of automatically controlled selections for both forward and reverse carriage tabulations; and ability to capture data automatically in either punched paper tape or punched card form as a direct by-product of the original posting operation. The 304 Data Processor is a medium size computer which includes such units as a universal converter, high-speed paper tape punch, high-speed printer, tape handlers and controllers, high-speed card reader, and high-speed paper tape recorder.

The National Alpha-Numeric Card Punch Coupler links a National accounting or adding machine to a card punch machine, permitting alphabetical or numerical information to be automatically punched into cards.

Post-Tronic equipment reads magnetic codes on paper documents, and is currently used largely for bank accounting functions.

NCR has also released for sale a complete step-by-step system which automates the handling of checks in commercial banks.

Philco Corp., Government & Industrial Group, Computer Division, Willow Grove, Pa. The Philco 2000 is a large-scale, ultra high-speed, all transistor electronic data processing system which is suited to a long range of applications such as file maintenance, payroll,

NCR 304 electronic data processing system has effective method for updating magnetic tape files; tape controller operates independently of the central processor.

general and cost accounting, inventory control, premium billing, bank deposit bookkeeping, sales order billing, stock transfers, revenue accounting, market analysis and management reports, and a great variety of others. It is available in a wide variety of components and system designs, each component compatible with every other one for maximum speed and reliability. Approximate cost of Philco 2000 is $1,500,000, and the rental charges are about $31,000 per month. Heart of system is central computer, the actual data processor of system, major components of which are internal storage units and the arithmetic and control sections. These components store the data and instructions, execute the instructions in sequence, and perform arithmetic and logical operations. Main internal storage is high-speed, coincident current, magnetic core memory. Basic size is 4,096 words. Intermediate speed storage is provided by magnetic drums. System has repertoire of over 200 instructions; it accommodates wide variety of input-output media.

Potter Instrument Co., Sunnyside Blvd., Plainview, N. Y. Firm has manufactured components for use in IDP systems, including high-speed printers taking inputs from magnetic tape, punched paper tape, and directly from computer systems; random access memory units; magnetic tape handling equipment; and punched tape readers.

William L. Raub, Inc., Silver Spring, Md. Company has punchwriter, which is a compact, electronic check-writing machine that simultaneously prepares bank money orders for input to tabulating equipment and for easy visual legibility. Unit prints amount on face of check in legible type and at the same time punches amount in standard tabulating code, thus enabling both machines and humans to read checks. Unit punchprints single cards or manifold, five-part forms.

Radio Corporation of America, Camden 2, N. J. Presently, there are three completely integrated data processing systems in the RCA product line.

The RCA 301 is a complete, low-cost EDP system. It has a processor with 10,000 individually addressable, alpha-numeric characters; disc file with a 2,500 characters per second transfer rate; high-speed 600 lines per minute printer; and card reader with speed of 600 cards per minute. This system may be expanded by adding a 20,000 character core memory, one or two Hi-Data cluster of six magnetic tape stations, paper tape reader and punch, up to four more disc files for a total capacity of over 23,000,000 characters, and a 100-card-per-minute card punch.

The RCA 501 is a general purpose system employing modular construction, transistor logic, centralized control, and accommodates both on-line and off-line inputs and outputs. For storage, the RCA 501 uses high-speed storage expansible from 16,384 characters to 262,144 characters and up to 62 magnetic tape stations with an information rate of 33,333 characters per second.

Input-output devices include 300 characters per second paper tape punch, 150 cards per minute card punch, 1,000 character per second paper tape reader, 400 per minute card transcriber, 600 lines per minute high-speed printer, and a monitor printer.

The RCA 601 has been designed to fulfill large volume requirements in such varied applications as payroll, engineering analysis, or file maintenance. System features 120,000 alpha-numeric characters per second tape stations (180,000 numeric characters per second).

J. B. Rea Co., 1723 Cloverfield Blvd., Santa Monica, Calif. Company has made a line of Readix electronic computers in the small- to medium-size class for general purpose use. Readix Dual Computer uses punched cards and magnetic tape, is a completely decimal computer, and is equipped to handle both research and development work and such business operations as payroll, sales analyses, labor distribution problems, and so on.

Remington Rand, Div. of Sperry Rand Corp., 315 Park Ave., S., New York 10. Remington Rand's Univac division caused excitement among data processing circles and along Wall Street by unveiling a new line of computers at a special press conference in St. Paul, Minn., last month. The equipment included the 1107 thin-film memory computer, 490 "Real-time" system, and 1206 military "Real-time" computer. These products, Marketing Director Gordon Smith told reporters, are proof that Remington Rand is "in the data processing business to stay."

The thin-film memory, which the company calls the "third generation" of computer memories (successor to the acoustical and core memories), gives data processing a new term: "nanosecond." This is a billionth of a second, a term that Remington Rand says is necessary to measure the internal memory speed of its new equipment. Previously, a microsecond (millionth of a second) would suffice.

The film is made by depositing vapors of ferro-magnetic metals on a thin glass plate. The process gives the film its property of antisotropy, or the ability to assume a different property with each direction of magnetization. This ability makes it possible for the computer to perform logical operations at speeds measured in nanoseconds.

Built on this principle is the Univac 1107 Thin-film memory computer, which can retrieve information 1,500,000 times a second, as compared with only 500,000 times a second attainable with core memories. The system is general-purpose and solid-state. It leases for up to $60,000 a month, and delivery time is 18 months to two years.

Also of interest to commercial users is the system that goes under the enigmatic name of 490 "Real-time" system. Rem Rand officials explain that "real-time" means that the computer can instantaneously control such operations as inventory and production control at a data processing center while information flows in from nationwide points of origination. Remington Rand foresees a demand for such a system, which costs up to $40,000 a month, in the fields of banking and airline reservations.

Remington Rand's Univac III is high-performance, medium cost, general purpose data-processing system. Among its features are:

Microsecond internal processing speeds usually associated with computing systems designed for engineering and scientific application;

Fast-access magnetic core storage available in multiples of 8,192

words, yielding a memory size of 8,192; 16,384; 24,576; or 32,768 words. These dimensions enable the Univac III System to process large segments of an application in a single operation;

A comprehensive single-address instruction repertoire including powerful programming logic, automatic index register modification, multiple short-word operands, field selection, and both decimal and binary arithmetic;

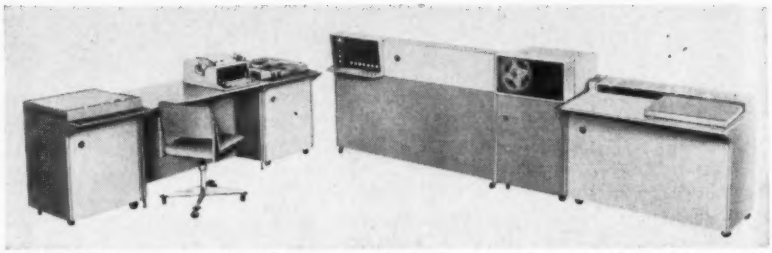
Sustained simultaneous computation, reading and writing of magnetic tape, reading and punching of cards, and printing, all overlapped with computing;

A compiler which accepts as its input Basic COBOL (Common Business-Oriented Language). Actually, COBOL is a concise form of the English language designed for the statement of business and government agency problems.

Basically a "bit machine," the Univac III System can be programmed to perform many types of special manipulations. This ability allows the programmer to use exceedingly sophisticated programming. Bit manipulation also allows the system to utilize a variety of input-output codes.

Univac II is digital electronic computer with magnetic core storage. Accessory equipment include Uniserve units, reading from and writing on metal magnetic tapes, high speed printers, punched-card-to-magnetic tape, and magnetic-tape-to-punched-card converters.

Univac 120 and Univac 60 are smaller computers using punched card inputs, with particular adaptability to such operations as billing, production control, statistical work, and scientific and engineering problems. Univac File-Computer is a medium size system, featuring random access; it is intended for business operations of the "on-line" type. Company also has an electronic punched tape typewriter, a development of the common language concept, which automatically creates and reads paper tape that activates other equipment and wire communications systems. Company also manufactures an extensive line of punched card equipment, including



RPC-9000 computer system has automatic in-line records processing; this permits equipment to accept data in random order and update in one uninterrupted sequence.

punches, sorters, tabulators, and so on.

Remington Rand also has two solid state computers called Univac Solid-State 80 and 90. Both are identical, except that one handles 80-column cards and the other 90-column. Input for machines is punched card or magnetic tape. Memory unit is magnetic drum. Output is punched card, magnetic tape, or printer.

Royal McBee Corp., Westchester Ave., Port Chester, N. Y. The Royal Precision LGP-30 electronic computer is a desk-sized, single-address, binary, stored program, fixed point, general purpose electronic digital computer. It features input-output via punched paper tape on integral electric typewriter or optional photoelectric tape reader and high-speed punch.

Keysort Tabulating Punch is complete, punched card installation in one machine. General functions of equipment are to code data automatically and internally into Keysort cards as a by-product of normal control total listing, then automatically sense these values and accumulate, print (on tape), and summary punch for any desired classification.

The newest development in integrated data processing by Royal McBee is the RPC-9000 which is said to provide automatic in-line records processing and also incorporates a large number of advanced computer design features. Because of the system's automatic in-line processing, data can be accepted in random order, and all affected records are automatically up-dated in a single uninterrupted sequence of operations. According to Royal McBee, which jointly owns Royal Precision with General Precision Equipment Corp., the RPC-9000 is fully designed to handle the complete range of business data processing needs, such as payroll, inventory control, production control, accounts receivable and payable, sales analysis, and forecasting. Information can be entered into the computer from punched paper tape, punched cards, or through the typewriter keyboard. Basic system includes a central processing and control unit which operates in microseconds, performs the calculations, controls the program, and searches the external memory tape; a continuous magnetic tape file for data storage; and an input-output tape typewriter system that reads paper tape at 60 characters per second, and punches tape at 30 characters per second.

Optional high-speed input-output units also available include a 400 cards-per-minute photoelectric reader for rapid input of data contained in 80-column punched cards; a 500 characters-per-second bi-directional photoelectric paper tape reader; a 300 characters-per-second tape perforating unit; a 150 lines (of 120 alpha-numeric characters each) per minute printer; a high-speed 666 or 1,000 lines (of 120 alpha-numeric characters each) per minute printer; additional tape typewriter systems for on-line or off-line use, and additional paper tape punch/read on-line units. Internal operating memory consists of nine blocks of magneto-strictive delay lines capable of storing 432 instructions or seventy-two 12-character words of data. This may be expanded to approximately 2,000 internally stored instructions, or 328 words. Memory units are compact, simple and easily replaced. External data memory is contained on endless loops of magnetic tape. Each tape loop will store up to 1,000,000 alpha-numerical characters, and 100 per cent of capacity may be used for data or instructions. Separately stored cartridges of tape expand memory capacity indefinitely. The RPC-9000 is

priced at $120,000, or may be leased for $2,450 a month. Firm also has RPC-4000 and Royal McBee Model 910 computer.

Scriptomatic, Inc., 1111 Vine St., Philadelphia 7. Firm produces the 101-S addressing machine, which is equipped for reading either IBM or Remington Rand punched card fields. This means that the equipment can be programmed to selectively print, sort, or count, based on the same fields of holes used by the punched cards, ledger cards, and other types of card media.

Model 301 Scriptomatic is designed to print at ultra-high speeds from punched cards to standard mailing tapes. It prints at speeds of 30,000 to 40,000 addresses per hour depending upon secondary operations to be performed. A five-line address is printed from standard punched cards to a 7/8-inch wide tape.

The Model 10 Scriptomatic is an intermediate machine between the larger fully automatic models and the hand units; it is used for semi-automatic addressing. Price range is from $30 for small hand unit to $60,000.

Shepard Laboratories, Inc., Broad St., at Park Ave., Summit, N. J. Firm manufactures an electronic high-speed typer operating on the rotary principle, which has type-wheels that spin continuously and in unison at 600, 900 or 1,200 rpm. There is no interference between reciprocating parts, according to the manufacturer, and typing rate is 600 to 900 lines per minute. The electronic typer is part of the company's electronic high-speed output system, which includes the Servo Transport Digital Tape Reader, Electronic Decoder, and Electronic Firing Group. The Electronic High-Speed Typers are in use as the output facility for RCA Bizmac Electronic Computers for the U. S. Navy, U. S. Army, U. S. Air Force, and other large organizations. Electronic Typer with Firing Group is priced at $39,750; the Digital Tape reader is priced at $15,000. Rental provisions are offered.

The Shepard Electronic Mini-Typer produces "hard copy" at 10 lines per second, in 14 columns spaced 5 to the inch, with 64 characters.

Soroban Engineering, Inc., Box 1717, Melbourne, Fla. Company makes line of IDP components including tape readers for reading one or two perforated paper tapes. High-speed punches to perforate paper tapes with codes of five, six, seven, or eight channels at rates to 300 code groups per second are also available. The firm produces verifying punches to verify data in punched paper tape; coding keyboard is used to compare re-entry of data with data in tape. Comparators to compare and detect discrepancies between two tapes intended to be identical are made by this company.

The Standard Register Co., Campbell & Albany Sts., Dayton 1, Ohio. Firm produces Stanomatic equipment which is designed to read magnetic codes on printed documents and convert information into a number of different common languages as required. Codes in five, six, seven, or eight channels are pre-printed by special typewriters, registers, bookkeeping machines, imprinters, or at the factory when the forms are printed. Ink or carbon is read electronically in the machine. Outputs may be punched cards, magnetic tape, or punched paper tape, in codes with from five to eight channels. Machines may be used for utility billing, insurance company premium collections, chain store operations of inventory control, cash balances, processing retail credit sales by oil companies, and so on.

Imprinting device called Selectronic Imprinter makes images using a ribbon device from an electro-type chase or graphotype plate on any continuous form.

Also available is new forms separator called Form Flow Vertical Separator.

Stanford Research Institute, Menlo Park, Calif. Not a manufacturer, the Institute carries on research and development of high-speed electronic computing systems with special attention given to new components such as transistors, for use in small electronic systems.

Stewart-Warner Electronics, 1826 W. Diversey Ave., Chicago 51. Firm has produced the S-W Electronic Data Processing Unit, a small digital computer, desk-size using standard electrical power sources. Equipment is designed for business applications such as sales analysis, inventory control, billing, order processing, etc. Product called Datafax also has been manufactured. It is facsimile equipment used for transmission of data over telephone circuits.

Stromberg Dvision, General Time Corp., Main and Elm Sts., Thomaston, Conn. Firm has Transactor, which is automatic data collection system that collects repetitive and variable transaction information at widely scattered points as it originates; it then transmits it, instantly and without manual intervention, to the central data-processing office, where it becomes available immediately in universally machineable punched tape form.

Sylvania Electric Products, Inc., 1740 Broadway, New York 19. Firm has developed MOBIDIC computers, high-speed, completely transistorized digital computers of modular design. Computers have high-speed random-access memory unit which can operate over wide range of temperature variation.

Systematics, Inc., 10 E. 40 St., New York 16. Company manufactures Intercouplers – electronic equipment to interconnect two or more business machines so that as one is operated in normal manner, the other (s) are operated automatically. Equipment is compatible with IBM cards, Remington-Rand cards, punched paper tape, (all channels), edge punched cards. All models handle alphanumeric information. Models are available for input and output application. Present models interconnect various machines made by National Cash Register, Friden, Remington-Rand, Olivetti, IBM Teletype, etc. Also available is a line of tape-to-card, card-to-tape, and tape-to-tape converters as well as tab card readers. Prices range from $590 to $5,000, depending on combination.

Firm also has Telepunch equipment for integrating punched card accounting with wire communications systems.

Technitrol Engineering Co., 1952 E. Allegheny Ave., Philadelphia 34. Firm has produced custom-built digital data handling equipment, and components from which electronic computer systems can be assembled. Included are the basic units of the data handling system itself and the accessory units such as power supply, cabinets, etc.

Telecomputing Corp., 12838 Saticoy St., North Hollywood, Calif. Company has manufactured the Point O' Sale Recorder for reading pre-punched merchandise tags and producing punched paper tape carrying the information coded in the tags, plus additional data entered manually by keyboard as necessary. Tape is then available for automatic processing in other IDP equipment.

The Teleregister Corp., 445 Fairfield Ave., Stamford, Conn. Company has made specialized equipment, including passenger inventory control systems used by transportation companies to keep track of reservations made and remaining space. New reservations when made are automatically taken into account to keep space status up to date. Equipment is used in network systems, with information records maintained centrally.

Teletype Corp., 5555 Touhy Ave., Skokie, Ill. Company offers an extensive line of message and data communications equipment, such as page printers, tape punchers, tape readers, message relaying and switching facilities for the standard communications code. A page printer is also available for 6-unit code, and there are tape punchers and readers for five, six, seven, and eight level codes.

Teletype equipment offers a wide choice of facilities for page printing, tape punching and tape reading. They will operate at speeds ranging up to 20 characters per second, depending upon the application used. Functional features including serial or parallel-wire input - output facilities, typebox printing, all-metal clutches and a mechanical programming device for control of internal operations, automatic station selection, and auxiliary equipment, provide a wide range of application facilities for handling data. This equipment is an integrated line, designed on the modular principle. High-speed punchers and readers are also available for operation at speeds up to 100 characters per second, depending upon the application used. Functional features including serial or parallel-wire-input-output facilities, typebox printing, all-metal clutches and a mechanical programming device for control of internal operations, automatic station selection, and auxiliary equipment, provide a wide range of application facilities for handling data. This equipment is an integrated line, designed on the modular principle. High speed punchers and readers are also available for operation at speeds up to 100 characters per second, five through eight level codes. Teletype equipment can be used with Data-Phone and other communications services.

T R W Computers Co., a div. of Thompson Ramo Wooldridge Inc., 200 E. 42nd St., New York 17. RW-400 Data Systems is "polymorphic" (occuring in many forms) system including a variety of functionally-independent modules which are interconnectable through a program-controlled electronic switching center. It is a large-scale data processing computer built around an expandable Central Exchange (CX) to which a number of primary modules may be attached. In addition to primary system modules, punched card, punched tape, high speed printing and control console devices are available. These handle nominal system input/output requirements. Additional man-machine communication devices such as interrogation, display and control consoles, may be included in the system as problem requirements dictate.

The RW-300 Digital Control Computer is a medium speed computer designed specifically for on-line process control applications. It is also specifically engineered for automatic control of industrial processes, data logging, and for test stand operation.

Typatape, Inc., 60 E. 42nd St., New York 17. Company has developed method of recording data in common language form by means of mechanical attachments to standard business machines. It prints a four-channel numerical code on paper tape ¼-inch wide, as a by-product of normal machine use. Tape is fed into a photoelectric scanning converter.

Underwood Corp., 1 Park Ave., New York 16. Firm has produced "Dataflo," an integrated processing system based on "building block" concept of merged electro-mechanical equipment which produces a continuous chain of business communications as a swift by-product of any original typewritten record. The Mastertyper unit, a standard electric typewriter with four-blank keyboard and automatic finger-letter code, prepares original business documents such as invoices, waybills, etc. Data can be entered from punched paper tape as well as manually. The Elecom is a small digital electronic computer and accounting machine with a magnetic disc storage unit.

Victor Adding Machine Co., 3900 North Rockwell St., Chicago 18. The electronic section of the Victor Adding Machine Co. has developed a new high speed transistorized analysis system called the Victor Class 100 which allows businesses to meet the problem of computing detailed cost, and sales and inventory figures. Designed to speed up accounting, forecasting, and planning procedures, it relieves office personnel of computing, classifying, tabulating, and inter-classifying tasks. System is composed of a central program unit to which is connected a Digit-Matic printer. It processes raw data in random form from punched tape. Reading at a rate of 1,000 digits per second, the program reader "selects" and adds related figures, then transmits them electronically to the solenoid-activated Digit-Matic which accumulates them. Price is approximately $12,000 with Digit-Matic Printer.

Victor Automatic Printing Calculator multiplies, divides, adds, and subtracts through one control and ten numbered keys. It features automatic constant division, automatic constant multiplication, and automatic credit balance. Price range is from $435 to $635.

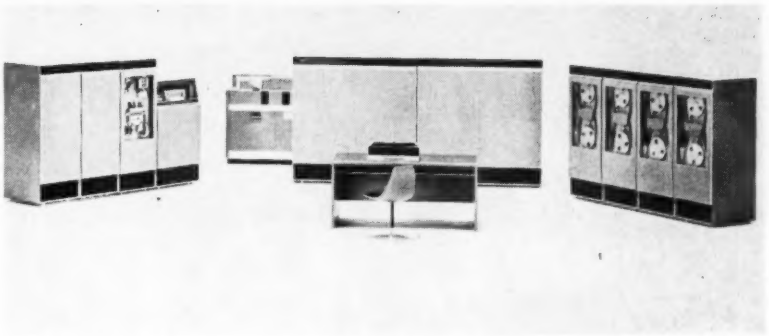
Victor Data Transmission Control System is monitor for verifying wire-transmitted numerical data. It provides a means of pinpointing and eliminating errors that occur in transmission of data over long lines. System is easily adapted to existing transmitting equipment used in chain and branch operations as well as to railroad, truck line, and air freight operations. Basic component of the system is a Digit-Matic solenoid-operated adding machine. Price range is from $425 to $1,100.

Victor Data Punch is an integrated data processing device consisting of a Victor Custom Line full-keyboard adding machine which activates a tape punch. Machine expedites accounting, forecasting, planning, sales analysis, and inventory by speeding-up the flow of vital facts and figures. Price range is from $1,325 to $2,000.

The Western Union Telegraph Co., 60 Hudson St., New York 13. Company has produced IDP facilities which include nationwide network of transmission lines, and wide range of communications devices, such as sending and receiving page teleprinters, tape perforators for punching paper tape, switching center equipment, automatic numbering machines, sorting equipment, and facsimile equipment. Type 19 sets have also been made by this firm to record information in punched tape and transmit it. (See also "Intercommunications.")

Accessories and services

American Lithofold Corp., 53 W. Jackson Blvd., Chicago 4. Electronic Check has prepunched tab card checks, on continuous marginal punched forms, with a side-stub perforation, mounted on Part 2 of the form, for use with tabulators, teletypers, and other equipment. Pocket Form for IDP tapes carries tape in built-in pocket on back of form. Hand filing or fastening with clips or staples is unnecessary. Electronic Remitter incorporates the addressed envelopes with account number, name, address, and amount of statement as an integral part of invoice or statement form. The return envelope stays with the statement until remitting customer makes payment.



High-speed Bendix G-20 system is designed to handle scientific problems, statistical studies, and commercial data processing; it may be expanded to larger systems; communication system has both on-line and off-line operation under program control.

Airmatic Systems Corp., 441 Market St., Saddle Brook, N. J. Firm has automatic conveyor and pneumatic tube system for paper handling procedures.

Beemak Plastics, 7424 Santa Monica Blvd., Los Angeles 46, Calif. Firm makes tabulating card holders which may be installed on shelves or in bins, boxes, and other containers.

Cycle Equipment Co., 17480 Shelburne Way, Los Gatos, Calif. Company has manufactured line of universal tape minders and standard model tape minders for handling punched paper tape. The units are slave machines which start and stop automatically as tape is fed or as feeding ceases; designed for communications systems.

Dressey Products, Inc., P. O. Box 2035, Providence 5, R. I. Firm has punched tape accessories in the Tape-File line including envelopes, holders, winders, unwinders, files, searches, reels, and boxes.

Forms, Inc., Willow Grove, Pa. Firm manufactures line-hole continuous business forms.

Mac Panel Company, High Point, N. C. Firm makes control panels and wires.

Monarch Metal Products, Inc., MacArthur Ave., New Windsor, N. Y. Firm manufactures data processing auxiliary equipment. It offers an extremely large variety of accessories and filing equipment for use with punched cards, including Filaway cabinets and a complete line of items for the storage, handling, and moving of magnetic tape.

Moore Business Forms, Inc., 900 Buffalo Ave., Niagara Falls, N. Y. Firm makes Model 425 imprinter detacher for continuous forms or continuous tabulating cards. It will imprint, slit-off margins, detach forms to be imprinted, remove margins, detach, and stack forms in numerical sequence. Also offered is an extensive line of forms for use in automated data processing systems with research facilities for the development of the forms required in such systems. Also available are the Formaliner and Vertical Spacer, devices for handling forms. Decollators and stands, imprinter-detachers, deleaving attachments, and other equipment are also available.

Also, Speeditacher, new portable detacher which is portable for on-the-spot use.

The Shaw-Walker Co., Muskegon, Mich., Firm has produced complete line of holders for filing punched paper tapes and edge-punched cards for all systems applications. Also File-Desk, which is a work station for Flexowriters.

Standard Instrument Corp., 657 Broadway, New York 12. Firm has Time Recorder Totalizer which continuously measures and records machine utilization.

The Standard Register Co., Campbell & Albany St., Dayton 1, Ohio. Company's IDP Workshop is used for the design and testing of forms use in IDP systems. The facilities are available for research. It also offers forms for IDP, together with accessory equipment for the handling of forms.

Systems Sales Co., 13 Broad St., Binghamton, N. Y. Company has produced line of storage equipment, sorting stands and carts for use in handling and storing tabulating cards, and for storing single, double and triple control panels. Also available are accessories for use with electronic computers.

Tab Products Co., 995 Market St., San Francisco 3. Company produces long line of automation accessory equipment. Equipment may be generally classified as follows: Tabulating card filing and storage; tabulating card handling; tabulating card reference; control panel storage; magnetic tape filing and storage; and "spacefinder" files.

Recently developed Tab equipment can, with relatively minor changes, be used in conjunction with punched card tabulating installations, card activated computers, magnetic or paper tape computer systems, and analog computers.

Uarco, Inc., 7902 S. Ashland Ave., Chicago 20. Firm produces bursting machines which separate continuous tabulating cards. New Uarco Burster is equipped with high efficiency trimmer, and is capable of trimming up to 12 piles of fastened control punched forms.

Universal Business Machines, Inc., Columbia, S. C., P. O. Box 5183. Firm has Keytronic line of sorting machines.

Visirecord, Inc., Copiague, L. I. N. Y. Firm offers a variety of equipment for storage of IDP common language media, including filing cards of the "vertical-visible" type, with pockets for punched tape, or with cards themselves capable of being punched along an edge with IDP codes. Also offered are plastic tape panels, plastic channel cards, and Visisleeves, which provide visible indexing for use in random sequence filing and finding of tape packs of variable lengths.

Wheeldex & Simpla Products, Inc., 40 Bank St., White Plains, N.Y. Firm manufactures mechanized rotary card files and offers equipment for housing IDP tapes for ready accessibility, either alone or in combination with related records. Simplawheel and Simplafind mechnized files may be used as the basic housing units. Simplawheel equipment is priced from $600 to $1,800; Simplafind equipment is priced from $3,000 to over $4,000. Wheeldex Portable Line consists of many smaller models carrying from 1,000 to 4,000 cards. Other Wheeldex models, either motorized or manual, contain from one to five wheels, and hold from 4,000 to 30,000 cards per cabinet.

Whiteford Laboratory, 420 Market St., San Francisco 11. Company has produced electric winder for common language tape with variable speeds and tension, and other features designed to operate automatically according to variations of output.

TYPEWRITERS

The typewriter of today not only continues to serve its fundamental purpose of printing neat, clear copy, but has also become one of the most important constituents of any highly automated office system.

It is employed as a systems machine in accounting, a substitute machine for the expensive typesetting equipment used to prepare printed copy for magazines and books, and a "point of origin" machine for entering information into integrated data processing systems. A variety of refinements and features have been added to the typewriter so that its traditional abilities and functions have been increased. Some of these refinements include horizontal and vertical half-spacing, simplified setting of margins and tabulation stops, the addition of special keys, and, of course, electrification of machines.

Several basic types of office typewriters have been on the market for quite some time. Those include noiseless machines, machines using carbon ribbons to produce copy of exceptional clarity, long carriage machines intended for statistical work, and electric machines. Several semi-electric models are also available. One type features an electric keyboard with manual carriage return while another has a manual keyboard with an electrified carriage return.

Typewriters have other modifications, too. One is designed to be used in the preparation of bar graphs and has keys with appropriate designs. Another has embossed codes resembling Braille for the use of the blind, and still another variety of the standard machine is one intended for the use of one-armed typists.

New developments

Other variations have transpired in the design of portable machines. An electric portable has been introduced—although it is not fully electrified as it does have a manual carriage return. Another portable features the carriage approach in changing ribbons. The ribbon is encased in two plastic containers similar to small film magazines and with the use of these, ribbons can be changed without being touched by hand. Some standard machines also have this feature. Interchangeable type is now available for some models. With this feature, the operator can very easily change the keyboard to permit the printing of additional symbols and characters needed in specialized work.

One significant advance has come about in tabulation. There is now a feature on some machines which allows a typewriter's tabulating mechanism to sense metallic ink printed on business forms. Forms used with this feature are printed with vertical lines of metallic ink at the left of each box on a fill-in form.

When the electronic sensing feature is used, tabulation is accomplished by pressing a special key. The carriage then moves until the metallic ink line is sensed by a special device and it stops just beyond the line. The typist at this point can make her entry without further tabulation or spacing.

It is no longer necessary, therefore, to set tab stops on machines which have this device, as the tabu-

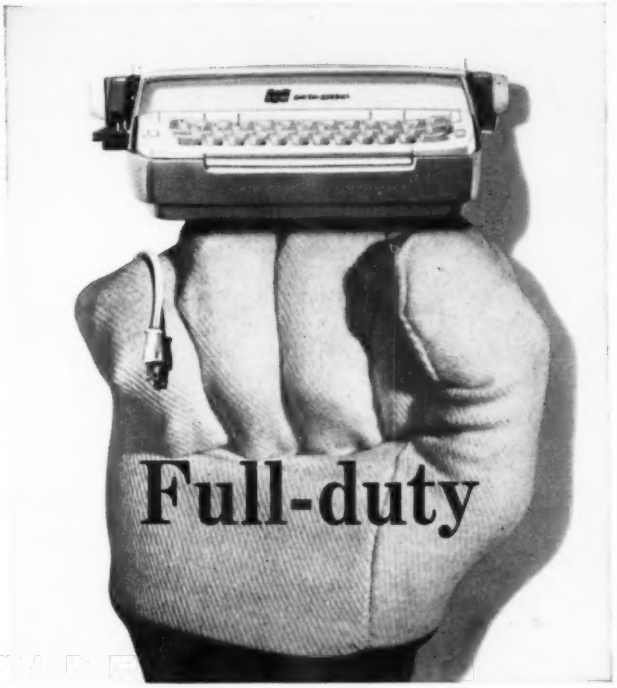
New Smith-Corona 200 Office Electric

A full-duty electric office typewriter that's completely automatic, including the carriage return.

The 200 is a compact electric (the world's first and only). Its precision-crafted parts do a big job in a small space. That is why it can be sold for just half the price of a big electric.

The solidly-built Smith-Corona 200 is a workhorse... not a "part-time" electric. It is built to handle full-time, nine-to-five typing assignments. What's more, it produces results that match the work of any other electric typewriter. Makes 12 clean carbons, too.

Too good to be true? Just call your Smith-Corona representative for a demonstration today. You'll be pleasantly surprised.



OM-1

Send today for new booklet—50 CHECK POINTS to help improve office and personnel efficiency. Yours free from Smith-Corona, 410 Park Avenue, New York 22, N. Y. There's no obligation, of course.

NAME_____

TITLE_____

COMPANY_____

ADDRESS_____

CITY_____ ZONE_____ STATE_____

(Circle No. 51 on Reader Inquiry Card)

lation setting is accomplished by the business form itself.

Another typewriter innovation simplifying forms entry has been the variation of the standard typewriter known as the system machine. This is equipped with a front feed carriage and can be used in a number of bookkeeping applications. The carriage is designed to hold business forms of various types. The machine may be equipped with a device which enables continuous forms to be advanced quickly the proper number of the spaces between successive entries. Systems typewriters fit very well into payroll, accounts payable, accounts receivable and other such operations.

"Justifying" feature

Many machines are now equipped with a "justifying" feature which evens line lengths so that both margins are in vertical alignment. The typewriters which have this feature are very well adapted for composing type for reproduction and are often supplied with a wide variety of interchangeable type fonts, including italics and special symbols. Because they can handle type in varying sizes and styles they can be used to prepare copy for magazines, small newspapers, announcements, mailing pieces, and the like. Copy prepared on this type of machine may be photographed and reproduced in volume by offset or similar methods.

Some machines may be used to control other typewriters so that a typist at one keyboard may turn out several original copies simultaneously. This equipment can also be further adjusted so that only certain portions of the original typing are duplicated by the "slave" machines. A related set of business forms can then be prepared with one typing effort, as the appropriate information may be transferred as needed to the forms typed by the slave machines. This is the same principle used in "one-writing" bookkeeping systems. Not only can typewriters be controlled by other typewriters but they also can be controlled by automatic devices using perforated rolls like those found in player pianos. Machines which use these devices can prepare letters automatically at very high speeds. Form letters may be punched into the master rolls and provisions are made so that the machine will stop to allow a typist to insert variable information such as prices, dates, and names.

Some automatic controls are designed for use with rolls containing a selection of paragraphs which can be combined as required to create an individually typed form letter. With these controls, typewriters can be programmed to type only the desired paragraphs; the machine skips over those not being used. One variation of this occurs when a pair of rolls is used to control one machine. This permits alternate paragraphs to be typed from each roll. This is of great advantage in high volume work, because as one roll advances the other controls the typing, eliminating the time required for a machine to skip over material not used.

With automatic typing, one operator can operate two or more machines, synchronizing her work so that she can make manual fill-ins on the machines at the right time, and remove and enter letters from the machines at the right intervals. Sometimes it is possible for an operator to handle as many as four or five machines at one time.

One of the most important modifications to the typewriter in recent years has been the addition of devices which enable it to read and/or punch a code on paper tape carrying the same information appearing on the typed copy. This by-product coded information can be read in turn by other typewriters, by communications equipment, and by tape-to-card punches.

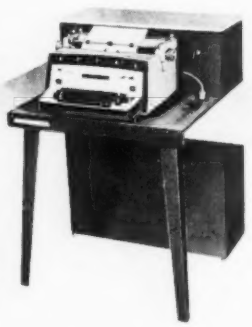
Because punched paper tape is one of the basic "common languages" for integrated data processing, the typewriter has become a fundamental instrument for introducing data into an integrated system.

New developments

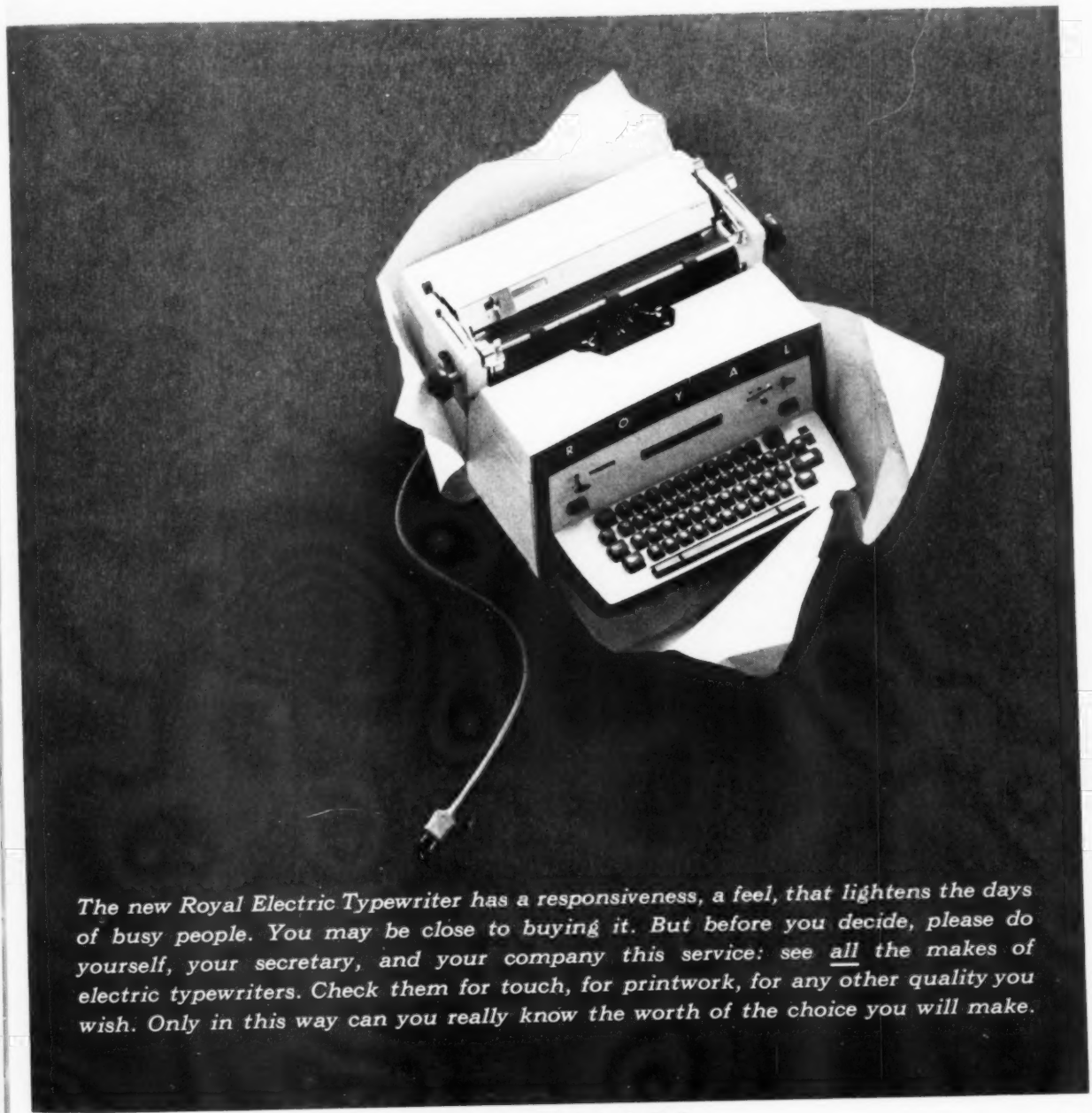
Similar codes may be punched into the edge of a card, and some typewriters are capable of both punching and reading such cards. Some typewriters employed in integrated data processing systems can encode material directly on magnetic tape that is used in electronic computers and still others can print out the results of data processing from computers and from measuring equipment used in manufacturing processes.

Royal McBee has announced a new "single system" automatic typewriter than can "increase secretarial output from 20 letters a day to 20 letters an hour." The master tape can reportedly be prepared on the machine simply by typing a visual copy of the material to be reproduced. The tape is then immediately ready to be fed into the same machine, which automatically types copy at the rate of 135 words a minute. The machine eliminates the separate punch previously necessary for automatic typewriters and has replaced the wide piano roll tape with a narrow, heavy paper tape. The new machine is called the Royaltyper and is available in two models; File-Tape Royaltyper and the Spool-Tape Royaltyper.

Remington Rand has announced some new engineering and operating features in their new electric typewriter. The most important development on the new Remington is said to be the new carriage suspension design. This is a new cushioning system which produces a very light, fast, and responsive touch. It also enables the typist to dial a precise adjustment for carbon copies with Remington's new Coordinated Copy Controls. These two dials set the printwork shading and the carriage position for normal or extra-thick paper packs. The dials are calibrated for the exact number of



Royal McBee's new Royaltyper is advanced "single system" automatic typewriter that can type copy at 135 WPM.



The new Royal Electric Typewriter has a responsiveness, a feel, that lightens the days of busy people. You may be close to buying it. But before you decide, please do yourself, your secretary, and your company this service: see all the makes of electric typewriters. Check them for touch, for printwork, for any other quality you wish. Only in this way can you really know the worth of the choice you will make.

(Circle No. 46 on Reader Inquiry Card)

carbon copies desired. The new machine offers 88 different pressure regulators, one for each of the 88 characters on the keyboard. This assures that every letter and symbol on the keyboard, whether large or small, prints with uniform precision.

A new slide-up vertical scale shows how many usable lines remain at the bottom of the sheet which is being typed, and a new "erasing table," a flat desk-like platform lying directly behind the platen and extending the length of the writing line, gives the typist a firm horizontal surface on which to make erasures. Other features include new visible margin stops, new perfect positioning scales, scientific wafer-like key tops and a removable top plate.

Typewriters

A—Automatic typewriters, other than machines used in integrated data processing.
C—Composing and justifying machines.
IDP—Machines which read and/or produce a "common language" record or are otherwise suited for use in integrated data processing systems.
MI—Miscellaneous.
N—Noiseless machines.
PE—Portable electric machines.
PM—Portable manual machines.
SE—Standard electric machines.
SM—Standard manual machines.
SY—Systems machines.

Addo-X, Inc., 300 Park Ave., New York 22. (PM;SM)
R. C. Allen Business Machines, Inc., 678 Front Ave., N.W., Grand Rapids, Mich. (SE;SM)
Alma Office Machine Corp., 349 Broadway, New York 13. (PM;SM)
American Automatic Typewriter Co., 2323 N. Pulaski Rd., Chicago 39. (A)
American International Office Equipment Co., 932 S. Curson Ave., Los Angeles 36. (PM;SE;SM)
American Voss Corp., 18097 Sorrento Ave., Detroit 35. (C;PE;PM;SM;SY)
Cole Steel Equipment Co., Inc., 415 Madison Ave., New York 17. (PM)
DeJur-Amsco Corp., 45-01 Northern Blvd., Long Island City 1, N. Y. (MI-Electric carbon machine;PM;SE;SM)
Facit, Inc., 404 Park Ave. South, New York 16. (PM;SM)
Fremaco International, Inc., 188 W. Randolph St., Chicago 1. (PM;SM)
Friden, Inc., 2350 Washington Ave., San Leandro, Calif. (A;C;IDP)
Inter-Continental Trading Corp., 90 West St., New York 6. (PM;SM)
International Business Machines Corp., 590 Madison Ave., New York 22. (IDP;SE)
Olivetti Corp. of America, 375 Park Ave., New York 22. (C;PM;SE;SM)
Paillard, Inc., 100 Ave. of the Americas, New York 13. (PM;SE;SM)
Remington Rand Div. of Sperry Rand Corp., 315 Park Ave., South, N. Y. 10. (A;C;IDP;N;PM,SE;SM)
Robotyper Corp., 125 Allen St., Hendersonville, N. C. (A)
Royal McBee Corp., Westchester Ave., Port Chester, N. Y. (A;IDP;PM;SE;SM)
Smith-Corona Marchant, Inc., 701 E. Washington St., Syracuse 1, N. Y. (IDP;PE;PM;SE;SM)
Underwood Corp., 1 Park Ave., New York 16. (A;IDP;PM;SE;SM)
Vari-Typer Corp., 720 Frelinghuysen Ave., Newark 12, N. J. (C)

BOOKS FOR EXECUTIVE READING

CHANGING PATTERNS OF INDUSTRIAL CONFLICT, by Arthur M. Ross and Paul T. Hartman. John Wiley & Sons, Inc., 440 Park Ave. South, New York 16. 220 pages. $6.50.

Developments taking place in the area of industrial conflict is the theme of this new book, which is one of a series. The authors point out that one major development is "the withering away of the strike, the virtual disappearance of industrial conflict in numerous countries where collective bargaining is still practiced. The other is the transformation of the strike, which in many countries is no longer a sustained test of economic strength but a brief demonstration of protest."

HOW TO BUILD JOB ENTHUSIASM, by Ed J. Hegarty. McGraw-Hill Book Co., 330 W. 42nd St., New York 36. 250 pages. $5.95.

This newly published book presents facts and pointers on building an employee's job interest, making him more aware of his present job and anxious to prepare for a higher job, and on improving his productivity as a result of increased job enthusism. Nine benefits of job enthusiasm are pointed out and also "selling tools" to make the package of tangible and intangible benefits meaningful to employees. Common problems presently besetting supervisors are discussed as well as such subjects as: using the tools of communication; running different kinds of meetings; using tests to help the worker do a better job; how planning and organization can aid in building job enthusiasm; and how to delegate jobs to get them done with enthusiasm. Based on clinic sessions on human relations in management, the book presents many examples and ideas drawn from the actual experience of supervisors who have attended these meetings. The book also explores ideas on how others use incentives to build a group of enthusiastic workers, and

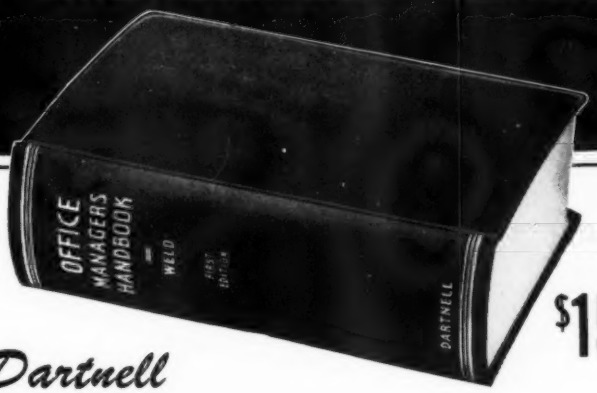
how to train workers on the job, in meetings, and schools. Other topics he covers deal with ratings, appraisals, and counseling. The "human touch" in management is examined, as well as meeting the six most common psychological needs and wants of workers.

A BRIEF GUIDE TO BETTER WRITING, by Robert C. Dickson and Morton N. Cohen, Oceana Publications, Inc., 80 Park Ave. South, New York 3. 64 pages. $2.50 (cloth) and $1.25 (paper).

This handbook is meant to serve as both a convenient guide in answering questions about the conventions of good writing and a refresher in the important principles of expression. Its purpose is to reacquaint the reader with some of the most important rules of the English language, and it will serve him as well in writing reports, term papers, or theses. The handbook is also meant to help the office secretary who has difficulty with her grammar and punctuation. A condensed and practical guide to the important rules of good writing, it discusses those problems of grammar, punctuation, and English usage that seem to give the most trouble.

THE MODERN PROGRAMMER, by Charles O. Reynolds. Pyramid Publishing Co., P.O. Box 4394, Philadelphia 18. $4.50. 164 pages. "The Modern Programmer" is a practical handbook for anyone in an executive capacity as well as a textbook for the "yearling" who aspires to a supervisory position with punch card responsibility. In the first 13 chapters the author outlines most of the day-to-day office human relations problems with particular emphasis on the solutions possible for the supervisor. Preparation of routines (Programming) for today's data processing, the author states, can have either positive or negative results on the people effected. The book contains suggestions which will help assure acceptance of the programs. The second part of the book is devoted to a discussion of tabulating equipment and its application; all of which leads to detailed practical instruction and problems in the programming of the RAMAC 305 (an electronic computer). Much of the

Now, in one volume—ALL OF THE IDEAS, INFORMATION, PRETESTED METHODS YOU NEED TO ANSWER ANY OFFICE MANAGEMENT QUESTION!



$15.00

The Dartnell

OFFICE MANAGER'S HANDBOOK

A complete and practical handbook for office supervisors

Every office supervisor will find this new handbook a compact and complete office management tool. It answers thousands of questions regarding every phase of office administration—recruiting and training, job analysis and compensation, cost control, office layout, new mechanization procedures, discipline, communications, vacations, credit unions—you name it, it's here. Scores of illustrations offer suggestions for bulletins, forms, organization charts, office manuals, and much more.

Carefully compiled and edited by The Dartnell Corporation, the valuable experiences of other supervisors like yourself are yours to share and profit from.

1,375 Pages—5 by 8 Inches—Flexible Covers—59 Sections—Illustrated and Indexed

SOME OF THE QUESTIONS ANSWERED IN THIS HANDBOOK

What are the eight basic steps to cost control?

How should I set up and operate a steno pool?

Can my company afford electronic data processing? What can it do for us?

What should be included in a good manual of office procedure? What should be left out?

What compensation are office executives getting these days?

Can I train office employees to write better letters? How?

In leasing office space, what factors must I consider?

How can mail costs be lowered?

What are the requirements of a good systems program?

GUARANTEED TO SATISFY or your money back!

AN APPROVAL ORDER

The Dartnell Corporation—Book Dept.
4664 Ravenswood Avenue
Chicago 40, Illinois

Gentlemen: Please send a copy of the OFFICE MANAGER'S HANDBOOK. If it doesn't fill the bill ($15, plus postage), I'll return it within 10 days for full credit.

☐ Bill us ☐ Check attached

Firm Name

Individual and Title

Street

City Zone State

(Circle No. 15 on Reader Inquiry Card)

text is illustrated with drawings and photos of the equipment being discussed.

Other books that were reviewed in the December issue are:

J. K. LASSER'S BUSINESS MANAGEMENT HANDBOOK, *edited by Sydney Prerau. McGraw-Hill Book Co., 330 W. 42nd St., New York 36. 842 pages. $12.50.*

THE MANAGER'S JOB, *Edited by Robert Teviet Livingston and William W. Waite. Columbia University Press, 2960 Broadway, New York. 457 pages. $10.00.*

EDP IDEA FINDER, *edited by Richard L. Sisson and Margaret Milligan. Canning, Sisson, and Associates, Inc., Los Angeles, Calif. 656 pages. $69.00.*

CLASSICS IN MANAGEMENT, *edited by Harwood F. Merrill. American Management Assn., Inc., 1515 Broadway, New York 36. 446 pages. $9.00/AMA members: $6.00.*

THE SPENDERS, *by Steuart Henderson Britt. McGraw-Hill Book Co., 330 W. 42nd St., New York 36. 296 pages. $4.95.*

MANAGEMENT PRACTICES, *by Richard C. Anderson. McGraw-Hill Book Co., 330 W. 42nd St., New York 36. 312 pages. $7.00.*

THE CRISIS WE FACE, *by George Steel and Paul Kircher. McGraw-Hill Book Co., Inc., 330 W. 42nd St., New York 36. $4.95.*

EXECUTIVE GUIDE TO BUSINESS PROCEDURES, *edited by Sidney Prerau. McGraw-Hill Book Co., 330 W. 42nd St., New York 36. 255 pages. $4.95.*

WORK IMPROVEMENT, *by Guy C. Close, Jr. John Wiley & Sons, Inc., 440 Park Ave. South, New York. 388 pages. $7.75.*

PLAIN LETTERS, *by Mona Sheppard. Simon and Schuster, 630 Fifth Ave., Rockefeller Center, New York 20. 305 pages. $4.50.*

THE ART OF PERSUASIVE TALKING, *by Lynn Surles and W. A. Etanbury, Jr. McGraw-Hill Book Co., Inc., 330 W. 42nd St., New York 36. 296 pages. $4.95.*

THE WASTE MAKERS, *by Vance Packard. David McKay Co., 119 W. 40th St., New York. 340 pages. $4.50.*

MANAGERIAL PERFORMANCE STANDARDS, *by Virgil K. Rowland. American Management Assn., Inc., 1515 Broadway, New York 36. 192 pages. $5.25/AMA members: $3.50.*

TOP MANAGEMENT HANDBOOK, *edited by H. B. Maynard, President, Maynard Research Council, Inc. McGraw-Hill Book Co., Inc., 330 W. 42nd St., New York 36. 1,248 pages. $17.50.*

THE NEW SCIENCE OF MANAGEMENT DECISION, *by Herbert A. Simon, Harper & Brothers, 49 E. 33rd St., New York 16. 50 pages. $2.50.*

MANAGEMENT CONTROL SYSTEMS, *by Donald G. Malcolm and Alan J. Rowe. John Wiley & Sons, Inc., 440 Park Ave. South, New York 16. 375 pages. $7.25.*

SAMPLE DESIGNS IN BUSINESS RESEARCH, *by W. Edwards Deming. John Wiley & Sons, Inc., 440 Park Ave. South, New York 16.*

WAGES AND SALARIES, *by Robert E. Sibson. American Management Assn., Inc., 1515 Broadway, New York 36. 224 pages. $5.25/AMA members: $3.50.*

STAFF IN ORGANIZATION, *by Ernest Dale and Lyndall F. Urwick. McGraw-Hill Book Co., Inc., 330 W. 42nd St., New York 36. 250 pages. $6.00.*

MANAGERIAL DECISION MAKING, *by R. W. Morell, Ph.D. The Bruce Publishing Co., 400 N. Broadway, Milwaukee 1, Wis. 201 pages. $6.00.*

MICROFILM

When microfilm first raised its tiny head in the early nineteenth century, few persons realized its immense potential. In fact, in the beginning, it achieved its prestige primarily through its use as decoration on ladies' baubles, i.e., rings, brooches, pins, etc.

Those early microfilm users would indeed be astonished to discover that this medium has become a vehicle for widespread records manipulation in government, industry, and science. Special uses and limited utilitarian uses, as in espionage activity, have long ago been submerged by common, everyday employment of microfilm. The "state of the art" has reached the point where microfilming is now a multi-million dollar industry with its own equipment, supplies and techniques. The most obvious reasons for using microfilm are:

1. To reduce storage space needed for records. The reduction in size of documents offered through microfilming not only saves filing space, but lowers the cost of records retention as a result of space saving.

2. For insurance against possible litigation. Microfilmed documents, if kept in correct order as required by law, can be entered as primary or secondary evidence in legal cases should the original documents be lost or destroyed.

3. To make valuable records available for posterity. Microfilm allows the precise recording of rare manuscripts and other unique materials whose contents might otherwise be lost through destruction or constant usage of the original document.

4. For security and protection. The organization having microfilmed copies of its records dispersed in safe storage in different geographical locations can avoid the other-

wise serious effects of fire, thievery, war destruction, and other unforeseen disasters.

5. Easy duplication of records. Reproducing microfilmed copies of documents in multiple form is low in cost, and makes records accessible to all who need them.

6. Lowers insurance costs. The fact that records are microfilmed reduces the amount of insurance coverage, lowers insurance rates, or both, resulting in a lowered over-all cost of insurance per document stored.

Two kinds of cameras exist for the process of microfilming original records. Because it is less specialized, the planetary camera is generally known as the "work horse" of microrecording. Although more hand movements are necessary for its operation, it can film anything which the automatic camera, referred to as the rotary, or flow-type, is unable to handle. Most planetary cameras hold 35mm film, although there are those which can accommodate 16mm, 70mm, and 105mm sizes.

Planetary cameras

All planetary cameras are designed on the same principle. The apparatus generally consists of a flat surface or table fitted with a vertical column. The camera itself can be moved up and down the column, permitting both photographs of different-sized originals, and photographs of the same original in several sizes. Holding two magazines, one for the exposed and one for the unexposed film, the camera usually has an automatic device which advances the film by one frame, thus keeping the camera ready for the next exposure.

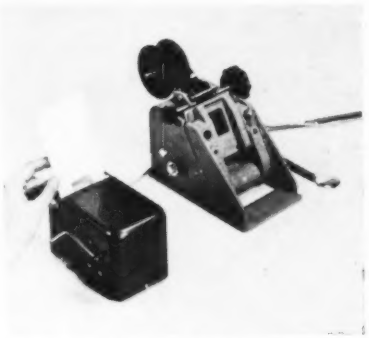
When using a planetary camera, each original record to be photographed must, for the majority of equipment on the market, be placed and removed by hand in the photographic procedure. The original to be copied must lie flat and parallel with the plane of the film in the camera. If the paper original curls at the edges, a sheet of glass should be used to hold it flat. Special devices to keep the pages of books flat are available.

Illumination of the document should be even during the time of exposure. Illuminating lights on either side of the table must be arranged in such a way as to ensure that light is of even intensity, strikes the document at an angle of 45 degrees, and does not reflect from either the original or the glass that may be covering it. Reflection will have serious effects on the legibility of the microcopy. For correct exposure of the document, the following factors come into play: intensity of illumination, the aperture setting on the camera, the shutter speed, the film speed, the color and brightness of the document, and the color and density of any color filter that may be used in special cases. On a correctly exposed film, the document image will show black lines of the original as transparent white lines, while the white parts of the original are reproduced in intense and nearly opaque black.

To use a planetary camera, therefore, one must have some familiarity with the problems of lighting, focus, depth of field, and composition. But no photographic knowledge is needed to operate the flow-type, automatic microfilming cameras. Manual operation is limited to putting in a fresh roll of film when necessary, and to inserting documents into the machine. The disadvantage would be that these cameras, because of a set throat size, can only photograph documents of a limited width. Nor can they be used to miniaturize bound material such as books. They are essentially high-speed reproducers of single sheet material. Such cameras operate at peak efficiency when used to film uniform records such as bank checks. With records of one type, automatic feeding can be employed, along with the automatic exposure. The effectiveness of the rotary camera decreases in direct proportion to the complexity of material fed into it.

Flow-type cameras

In flow-type cameras, the original documents are continually in motion, even during the actual exposure. The machine has no shutter and does not provide a fixed image format. Documents are fed into the machine by a feed roll whose speed is identical to the speed of the microfilm moving on the other side of the lens. As the document passes over a narrow slit, the lens is allowed to "see," and expose to the microfilm each part of the original as it goes by the opening. Flow-type cameras can also copy both front and back of a document simultaneously. Apparatus of the rotary type is utilized by large organizations such as banks, where thousands of checks and other records must be microfilmed every day.



A new unit designed to speed precision mounting of microfilm on aperture cards, recently developed by Dataflow, Inc.

Size reduction of the original document is the primary purpose of any microfilming camera. The reduction ratio of such instruments refers to the number of times the lens will reduce the original graphic image in the microfilm exposure. This ratio is important since it determines to a large degree the legibility of the image and the number of images which can be obtained on a given amount of film. Too often, legibility is sacrificed through large reduction ratios in order to squeeze as many images on one film as possible. The reduction ratio chosen should conform to an acceptable standard of legibility after taking into account all the factors which are brought to bear, including the size of the original, size of the film, and the quality of both. Ideally, when the original document is compared against the reproduction, either in a viewer or on photographic paper, there should be no variation in the quality of the text.

In looking at the methods for obtaining administrative copies for everyday office use, it must be remembered that the production and use of such copies should satisfy certain minimum requirements needed for good records handling. Such requirements, as listed by the National Records Management Council, are:

1. Easy reference or information

retrieval through an indexing system which is as uncomplicated as possible.

2. Features that will allow for "add-on" of any information relating to a previous business transaction.

3. Easy deletion of obsolete information.

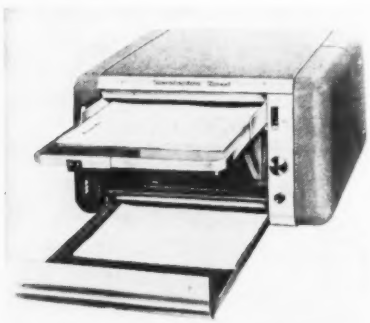
4. Ability to sort out all information which is common or related to a single area or business transaction.

5. Ability to sort out a single bit of information which is entirely unrelated to anything else.

6. Capacity of reproducing duplicate copies without loss of detail.

If active records handling through microfilming systems cannot satisfy these requirements, then it would be better to avoid microfilming as an active tool. The point is, however, that techniques *have* been developed to accomplish these aims, while still retaining microfilm as the passive tool described earlier. Indeed, the experts say that before long, a person who wishes to find one or more miniaturized documents in a file of millions, even though he knows only one or two facts about its contents, will be able to obtain the miniature (s) in seconds, simply by giving a verbal inquiry. This retrieval includes the delivery of hard paper copy of same, if desired.

Traditionally, the solution for information retrieval of miniaturized images has meant that a pair of human eyes has to search a classification index, finding the category in which the microrecord was likely to be held. The eye then searched through every microrecording in the category itself, rejecting item after item until the desired image was found. This involved going through rolls of microfilm conventional indexes, or both.



Rem Rand's Film-A-Record "Pacesetter" has detachable feeding, receiving trays.

Manual retrieval improved somewhat when viewers to read the film were motorized, and indexing systems were devised to facilitate the location of an image within the roll of film itself. Further improvements came about as a result of cutting the film into short strips of related micro-images, each containing perhaps ten microcopies, the first of which could serve as a summarizing reference to the whole strip.

Existing also, are micro-opaques, that is, micro-images on paper rather than transparent materials, produced photographically or by offset printing. Sometimes, images can be put on both sides of the card or paper; sometimes the other side is reserved for indexing information or for adhesive material to permit attachment of the micro-image to a selected surface, usually a file card.

Utilization, mechanization

Elements of mechanization entered the picture with the advent of unitization, or the cutting of film into individual frames containing single graphic images. These single images, when mounted on punched cards coded with appropriate indexing data (aperture cards) enable microfilm users to take advantage of the sophisticated sorting and withdrawal techniques offered by punched card equipment. The desired punched card with image attached can be extracted from the file readily, inserted into a viewer for reading, and hard copies made from it if necessary.

Not so well-known is the Kalvar system of adding microfilmed documents containing related information to aperture cards. Kalfax has a mylar base coated with a sensitized surface. A piece of this can be mounted in an aperture card, and images can be mounted from time to time employing ordinary microfilm as an intermediary. After several documents have been exposed to conventional microfilm, aperture cards containing some images and some blank spaces are organized into the same sequence for direct transfer of the exposures from the ordinary microfilm to the aperture card. Each image is exposed to ultra-violet light for a contact copy onto the Kalfax film in the aperture card. Development and fixation of the image is by short exposure to heat. The process provides for easy additions to the microfilm system without increasing the number of aperture cards.

From cards to chips

Now, manufacturers have progressed to film chips, which, being 16 x 32 mm in size, are smaller than aperture cards but can contain a much greater amount of graphic information. Actually such chips contain a matrix of miniature photographic images along with identifying coded information in the form of binary codes. Film chips are stored on a long stick or rod, and can be filed and searched electronically. Thus, electronic selection has been combined with miniaturized graphic images in one system which is called a photomemory system. Such a unit, it is expected, will soon be able to answer a request for data by turning up all of the graphic images bearing upon the question, in a matter of seconds. This is done by searching of the film chip file, involving the electronic scanning of the digital information on each chip, and comparing it with the request for data. This, then, is information retrieval by association of facts rather than search of indexes, and represents the latest project being worked on by companies today.

Naturally, progress in technology causes some obsolescence, but it seems reasonable to assume that the systems devised will tie in with existing equipment without rendering too much of it obsolete. Machines for reduction of records and equipment for reproduction of same will probably not be affected by the proposed new systems. It is in the area of information retrieval and manipulation of records where we can expect the greatest changes to occur.

In the field of microfilm, new developments from Microseal Corp. include four new products: (1) a new type of microfilm aperture card for tabulating machines; (2) a

Just feed documents into new RECORDAK Portable Microfilmer and they're photographed instantly (for a fraction of a cent each) and returned in sequence

How to save money before banking it!

Here's a check-handling short cut with RECORDAK Microfilming that every business can use

THOUSANDS OF BUSINESSES—some like your own—have found an easy way to take much of the work and risk out of handling incoming checks. Just take their pictures with a RECORDAK Microfilmer. This eliminates keeping a costly handwritten record of every check, and it ends transcription errors, too.

So much safer. All it takes is one missing check to prove the extra value you get from microfilming. Recordak can produce facsimiles of all lost or stolen checks from your Recordak films. With these prints in hand, you can collect with minimum inconvenience.

New RECORDAK Portable Microfilmer provides fast, convenient microfilming. You just feed items—up to 90 checks a minute, for example—and they're photographed and returned in sequence. No skill needed. Recordak's full line also includes completely automatic microfilmers for larger concerns.

RECORDAK®
(Subsidiary of Eastman Kodak Company)
originator of modern microfilming
—now in its 33rd year

IN CANADA contact Recordak of Canada Ltd., Toronto

MAIL COUPON TODAY

RECORDAK CORPORATION E-1
415 Madison Avenue, New York 17, N.Y.

Gentlemen: Send free booklet giving details on new RECORDAK Portable Microfilmer.

Name_____

Position_____

Company_____

Street_____

City_____ State_____

(Circle No. 42 on Reader Inquiry Card)

microfilm card mounting device, the Hand-Mounter D-2; (3) a viewer/verifier for microfilm, the Verifier/Viewer V-1; and (4) a diazo microfilm duplicator, the Diazo Duplicator Z-1.

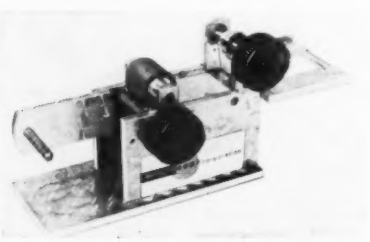
Probably the most important of these products is the new type of aperture card for mounting microfilm on tabulating machine cards and business forms; an optically clear plastic pocket protects the microfilm in the aperture of the card.

One end of the plastic pocket is open so that the microfilm can be inserted into the pocket or removed without damage to the film. The new cards may be used on standard Remington-Rand and IBM equipment without special adapters. Blowback copies of the microfilm in the transparent pocket of the cards can also be made on conventional machines now in use.

One of the other new Microseal products is a microfilm mounting machine (the Hand Mounter D-2), which automatically inserts microfilm into the aperture card and cuts the film from the roll of microfilm. An operator can mount from 400 to 600 microfilm frames per hour in the new cards. This speed covers the needs of most engineering departments and offices.

The new Microseal hand-size machine has been designed so that it can be easily placed on the Verifier/Viewer V-1 so that the operator can quickly verify the microfilm with the proper tabulating card as the microfilm is inserted into the card.

The combination of these two devices simplifies mounting microfilm into tabulating cards without making the mistake of getting the wrong film in the wrong card.



Microseal Corp.'s new Hand Mounter D-2, a microfilm card mounting device.

The Microseal Diazo Duplicator Z-1 is designed so that diazo microfilm copies may be made from roll diazo film. The duplicate copy may then be mounted in a card or used by itself, thus saving the cost of the card, which cannot be done, under present systems now in use.

Microfilm equipment

The following list includes the major manufacturers of microfilm equipment. It also includes suppliers of service used in preparing "unitized" microrecords.

The codes are as follows:

C—Cameras.
MI—Miscellaneous.
RF—Readers using roll film.
RO—Readers for opaque microimages.
U—Supplies and services for unitizing microimages.

Atlantic Microfilm Corp., 28 Railroad Ave., Pearl River, N. Y. (C; MI-Editing unit for film and microfilm cabinets;RO;U)

The American Microfilming Service Co., Microtape Systems, 44 Laura St., New Haven, Conn. (MI-Filing systems for opaque microimages in unitized forms; RO;U)

American Optical Co., Instrument Div., Buffalo 15, N. Y. (RO)

Browne-Morse Co., Muskegon, Mich. (MI-firm files)

Charles Bruning Co., Inc., 1800 W. Central Rd., Mt. Prospect, Ill. (MI-Enlarger, printer)

Burroughs Corp., 6071 Second Ave., Detroit 32. (C;MI-Readers which make prints or copies from film; RF)

Cook's Inc., 207 W. Lakeview Ave., Blackwood, N. J. (MI-Transparent holders)

Copycat Corp., 251 Park Ave. South, New York 3. (MI-Units to make prints from filming)

Diebold, Inc., Flowfilm Div., P.O. Box 127, Norwalk, Conn. (C;RF; U)

Documat, Inc., 385 Concord Ave., Belmont Mass. (C;RF;RO)

Durst (USA), Inc., 770 Eleventh Ave., New York 19. (M;MI-Unit to make prints or copies from film;RF)

Eastman Kodak Co., 343 State St., Rochester 4, N. Y. (C;MI-Enlargers, microfilm print, positive film, and projection papers; RF; RO;U)

The Filmsort Co., Div. of Minnesota Mining & Mfg. Co., Inc., Pearl River, N. Y (R;U)

Graflex, Inc., 3750 Monroe Ave., Rochester 8, N. Y. (C)

Graphic Microfilm Corp., 115 Liberty St., New York 7. (C;RF; RO;U)

Griscombe Products, Inc., 133 W. 21st St., New York 11. (C;MI-Reader unit has print making feature; RF;RO;U)

Hall & McChesney, Inc., 1233 Oswego Blvd., Syracuse, N. Y. (U)

Haloid Xerox, Inc., 2-20 Haloid St., Rochester 3, N. Y. (MI-Microfilm xerographic printers)

F. G. Ludwig, Inc., 66 Coulter St., Old Saybrook, Conn. (MI-Developer for processing enlargements from microfilm)

Microfilm Corp., 13 E. 37th St., New York 16. (C;R)

Microfilming Corp of America, 2 Llewellyn Ave., Hawthorne, N. J. (C;RF;RO;U)

Microlex Corp., 1 Graves St., Rochester 14, N. Y. (RO)

Minnesota Mining & Mfg. Co., 900 Bush Ave., St. Paul 6, Minn. (MI-Reader which makes prints from microfilm by Thermofax process)

Ozalid, Div. of General Analine & Film Corp., 13 Ansco Rd., Johnson City, N. Y. (C;MI-Readers which make prints from microfilm;RF;RO;U)

Peerless Photo Products, Inc., Tesla Rd., Shoreham, N. Y. (MI-Flow-type reduction camera)

Photostat Corp., P.O. Box 1970, Rochester 3, N. Y. (C;MI;RF)

Recordak Corp., 415 Madison Ave., New York 17. (C;RF;RO;U)

Remington Rand Systems Div. of Sperry Rand Corp., 122 E. 42nd St., New York 17. (C;RF;RO; MI-Feeders, film and processors; U)

Security Steel Equipment Corp., Avenel, N. J. (MI-Feeders, film and processors;U)

U.S. Microfilm Co., 868 Main St., Stamford, Conn. (C;RF)

Visirecord, Inc., 54 Railroad Ave., Copiague, L. I., N. Y. (U)

Watson Mfg. Co., Inc., 65 Taylor St., Jamestown, N. Y. (MI-Film storage cabinets)

Yawman & Erbe Mfg. Co., Inc., 1099 Jay St., Rochester, N. Y. MI-Cabinets)

BUSINESS FORMS

With proper supervision over the design and construction of business forms, management can to a large extent regulate clerical operations by directing and controlling business's inevitable anathema of paperwork. It is imperative that the utmost attention be given to the design of each individual form since many hours can be either gained or lost as a result of properly or poorly designed forms.

The most common types of business forms are: cut forms; card record forms; visible record forms; machine accounting forms; check forms; tag forms; stock forms; manifold books (salesbooks); needle sorted punched cards; pegboard forms; one-time carbon unit sets; continuous forms; and envelopes.

The business form accomplishes at least three imperative goals: (a) It defines and outlines the data which are to be communicated. (b) It designates the space in which the data are to be recorded so that they can be conveniently found. (c) It provides copies for the receivers involved so that each can fulfill his special part of the transaction. Forms provide an economical and convenient way to write instructions in any business or business system. The combination of form and system offers the means by which a firm conducts its operations. The form is, in fact, the life line of the office which makes the system work. It directs, answers, and disciplines.

In a government survey conducted recently, it was found that for every dollar spent on forms, $20 was spent in ordering, receiving, storing, filing, and distribution. It therefore pays to derive the most value from one's forms.

Business forms

Adams Brothers, Topeka, Kansas

American Business Systems, 2929 *B. St., Philadelphia.*

American Lithofold Corp., 53 *W. Jackson Blvd., Suite* 1620, *Monadonock Block, Chicago.*

American Register Co., 564 *East First St., S. Boston* 27, *Mass.*

Arco Manifolding Co., Inc., 21 *Rose St., New York* 7.

Atlantic Register Co., 144 *Moody St., Waltham* 54, *Mass.*

Autographic Business Forms, Inc., 45 *E. Wesley St., South Hackensack, N. J.*

Baltimore Business Forms Co., 3120 *Frederick Ave., Baltimore* 29.

Bedinghaus Business Forms Co., 333 *W. Court St., Cincinnati* 2.

Bonnar-Vawter, Inc., 1717 *E.* 30*th St., Cleveland, Ohio.*

Business Forms, Inc., 214 *W. Knox St., Ennis, Texas.*

The Carbonized Paper Co., Div. of Nebraska Sales Book Co., Box 631, *Lincoln* 1, *Neb.*

Clarkson Press Inc., 189 *Van Rensselner St., Buffalo* 10, *N. Y.*

Consolidated Business Systems, Inc., 30 *Vesey St., New York* 7.

Cullom and Ghertner, 600 21st *Ave., N. Nashville, Tenn.*

The Egry Register Co., 429 *E. Monument Ave., Dayton* 2, *Ohio.*

Ennis Business Forms, Inc., 214 *W. Knox St., Ennis, Texas.*

Forms, Inc., Easton Road, Willow Grove, Pennsylvania.

Arthur J. Gavrin Press, Inc., Gavrin Press Bldg., New Rochelle, N. Y.

Gen Multi Forms Sales Co., Box 1094 *Nashville* 4, *Tennessee.*

Stephen Green Co., 34th & *Market St., Philadelphia.*

The Hamilton Autographic Register, Co., Hamilton, Ohio.

Philip Hano Co., Inc., Sargeant St., Holyoke 85, *Massachusetts.*

International Business Forms, 1600 *E.* 26th *Street, Little Rock, Arkansas.*

Master-Craft Corp., 831-903 *Cobb Ave., Kalamazoo, Michigan.*

Miami Systems Corp., Robertson Road at 34th *Avenue Oakley, Cincinnati* 9.

Midwest Rotary Maniforms, P.O. Box 112, *Caro, Michigan.*

Moore Business Forms, Inc., 900 *Buffalo Avenue, Niagara Falls, N.Y.*

National Business Forms Assoc., 207 *E. Broward Blvd., Fort Lauderdale, Fla.*

National Litho Forms Co., 18423 *Euclid Avenue, Cleveland* 12, *Ohio.*

Nebraska Salesbook Co., 21st *to* 22nd *St. on Y. Lincoln* 1, *Nebraska.*

Newport Business Forms Co., 905 *G. Hampton, Newport News, Va.*

Port Huron Sulphite & Paper Co., Port Huron, Michigan.

The Potter Press, 516 *South St., Waltham, Mass.*

Reynolds & Reynolds Co., 800 *Germantown Ave., Dayton* 7, *Ohio.*

Rogersnap Business Forms, 4924 *Reading Street, St. Louis* 1.

Royal McBee Co., Westchester Avenue., Port Chester, New York.

Royal Register Co., Simon Street, Nashua, New Hampshire.

The Shelby Salesbook Co., Shelby, Ohio.

The Snapout Forms Co., Chardon, Ohio.

Standard Register Co., Campbell & Albany Streets., Dayton 1, *Ohio.*

Star Forms, Inc., Bettendorf, Iowa.

Todd Company, Div. Burroughs Corp., 1150 *University Ave., Rochester, N. Y.*

Uarco, Inc., 300 *W. Congress Pkway, Chicago* 7, *Illinois.*

The Wallace Press, 444 *W. Grand, Chicago.*

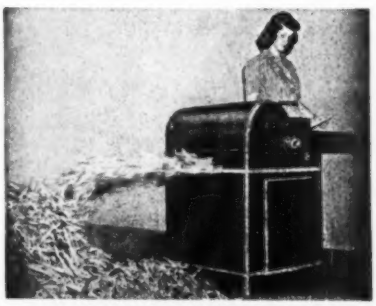
Alfred Allen Watts Co., Inc., 216 *Williams St., New York* 7.

Wilson-Jones Co., 209 *S. Jefferson St., Chicago* 24.

THE SHRED ALL
WASTE PAPER SHREDDER

Quickly shreds newspapers, magazines, waste paper, tissue, cellophane, corrugated cartons, wax paper, etc., into uniform resilient strands ideal for packing purposes. Especially adapted to shredding confidential records, blueprints, etc., permitting the return of this high-grade paper to the paper mills, for re-use.

Compact, economical, safe. All revolving parts are covered. Instantly adjustable. Shreds 1/4" to 3/8". Designed for continuous and trouble-free service.



FREE TRIAL
Operate a SHRED ALL 30 days. If not satisfied—return—owe nothing.

UNIVERSAL SHREDDER COMPANY
Dept. M SAGINAW, MICHIGAN
(Circle No. 59 on Reader Inquiry Card)

Job stability predicated on sharp rise in economy

(*From page* 11)

this trend will be eventually. Obviously, there already has been a certain amount of serious unemployment created by technological advances in the manufacturing area. As the new concept of total automation is perfected, the concept by which the entire company is treated as a machine, rather than as a series of separate functions, the number of total personnel needed in all areas is likely to drop still further.

Various government groups have studied the possible implications of the problem, but so far no national action has been taken on any of the various recommendations made. There is some indication that the new Administration taking over in Washington will make more serious and intensive studies of the entire area of possible problems created by automation. John Diebold, of John Diebold Associates, recently reported that conversations with some of President-elect Kennedy's advisors lead him to believe that the first "really complete" study of American automation will probably be made by the government sometime next spring.

Diebold is one of the authorities who believes that automation will not necessarily create unemployment, although he concedes that there will be job displacement. His theory, however, is predicted on the premise that there will be a much more rapid expansion of the economy than has been true in the last several years.

Mr. Diebold recommends that the forthcoming government study teams include economists and sociologists as well as business and labor representatives, and that definite retraining and relocation programs be established for the benefit of those who may be displaced by automation.

Perhaps equally significant with the possible job dislocations that may be brought about by automation will be the relocation of power and influence within the usual company hierarchy. If companies are to become integrated "machines", in which all functions are controlled by a central data processor, obviously there will be profound changes in the management structure. The centralization of information processing which usually results from a computer installation immediately takes away some of the independence and authority of the plants, distribution points, sales offices in the field. As a company moves closer and closer to total integration, in which inventory is auto-

WE ASKED THESE

(Circle No. 37 on Reader Inquiry Card)

matically linked to sales, and production schedules to inventory levels, the balance of power in the company structure will gradually shift from the traditional foci – sales, production, finance – and move over toward those who manage the information network on which all company functions will become dependent. This does not mean that the technicians who handle and program the machines which manipulate the information will gain control. It means that the information specialists themselves – those who channel the information into the proper areas, who devise the whole nervous network by which the company moves and lives – will gain more and more influence. For, after all, how important a function does the production chief have in a company where production schedules, raw materials needed, and product mix are determined by the computer, printed out as production orders and specifications, and sent directly to the plant or plants concerned? And yet exactly that process is being followed in some businesses today, which relate warehouse disbursals (stored in the computer's memory), sales forecasts (calculated by the computer), and determine (within the computer) which factories shall make which parts to restock particular warehouses.

Moreover, this tightening of control over all company functions by those who control the information which stimulates all company action is going to be an increasingly common event in the years ahead.

Fanciful? Possibly but not necessarily. In "Next, the Solid State Vice President," by George Boehm, which appeared in the December, 1960 issue of *Fortune*, the author makes the point:

"In time, when the links are joined, the computers that control processes will work in consort with business-data computers to make routine decisions all along the line, up to the vice president's office."

In other words, machines are not only taking over the information requirements that tell production what to do, and how to do it; in some industries where a continuous flow production method is possible, machines are themselves running production.

So administration—or possibly "information"—the maintenance and design of the internal communica-

E CHARMING GIRLS:

What famous papers work better for you... and help you do better work for your bosses ?

(Circle No. 37 on Reader Inquiry Card)

tions flow, with the proper feedback mechanisms, will rise in importance as the traditional major company functions decline.

Not only clerical workers will be affected by the impact of automation. If large clerical work groups are eliminated or cut down, supervisors will be diminished too. As the work of various departments is rescheduled or altered, many of the junior executives within departments may also be displaced. There are two schools of thought on this. One school holds that the total effect of automation will be to make the company structure more rigid than it is today, with a much smaller middle management group, and a much larger technical group, directly under top management. This school holds that the readjustment will create a much sharper line of demarcation between top and middle management in the organization structure, and will remove many traditional decision-making functions from middle management altogether. A more hopeful viewpoint is expressed in a recent Harvard Business Review article, "The Manager and the Black Box," by Melvin Anshen. (*Harvard Business Review*, November-December, 1960). Mr. Anshen's thesis is that the freeing of middle management levels from routine decision-making functions will create new opportunities for executives at such levels. Since they can devote more time to "problem identification, decision implementation, and new opportunities to find solutions, middle managers will be top managers in miniature," he writes. "They will have more occasions to exhibit their capacities, build on experience, and qualify for advancement."

Optimism is not universal

This is, of course, quite possible, but it is by no means the universal expectation. The first school has, if anything, more adherents. And, under any circumstances, the total number of people in middle management levels would seem bound to decrease, unless there is such a rapid expansion of total national production that all available men and machines are just enough to meet the needs.

Some of these problems are dealt with at greater length in the article, by Edith Conner, which appears

N
NEKOOSA BOND
. . . the nation's favorite for letterheads and office forms. Comes in white and twelve colors. Matching envelopes available.
E
NEKOOSA MIMEO
. . . is "pre-tested" to assure proper ink absorption, strength and opacity. Will not curl nor wrinkle. In white and six colors.
K
NEKOOSA DUPLICATOR
. . . performs perfectly on liquid or gelatin process machines. Gives brighter, cleaner copies . . . with longer runs from master. White and seven colors.
O
NEKOOSA LEDGER
. . . made for pen, pencil or machine . . . for printing, ruling, writing. Famous for strength and durability. In white and three colors.

NEKOOSA-EDWARDS PAPER COMPANY • PORT EDWARDS, WISCONSIN

(Circle No. 37 on Reader Inquiry Card)

Educational emphases, as well as methods, will change

on page 18 of this *Trends and Forecast* issue. They are mentioned here as examples of some of the areas that will have to be explored thoughtfully in advance of the sweeping changes that automation will make in our economy.

It seems, however, very certain, that in the totally new production picture we are moving into, the country not only can afford both guns *and* butter, but that it is essential the country ensures that it does have both. We must have expansion of basic production facilities, and output, greater emphasis on defense materiel, and continued production and consumption of the goods and luxuries which so many of us now consider necessities.

The effect of automation on educational requirements, again dealt with more extensively in the personnel article by Miss Conner, is obvious. Not only will automation in the form of "teaching machines" have its effect on educational methods: the emphasis in education, or at least in business education, will be to stress the sciences, particularly mathematical logic, far more heavily than has been done in the past. For, to a large degree, business firms will be relying on operations research, information logic, and mathematical specialists in the future for high echelon jobs. Indeed, some of those who do not feel automation will ever cause any serious employment problem count on this type of job and lower echelon technical jobs replacing the jobs that will be made obsolete. But obviously, this type of training is going to demand, not only a change in educational emphases, but also a distinct change in the type and quality of human being selected for the new business role. The qualities that make a good salesman or manager are very different from the qualities that distinguish a mathematician or logician. The ground rules, the goals, and the working patterns of research workers and scientific or technical personnel are completely different from those of the average worker in today's office.

These, in brief form, are some of the problems that may be anticipated in the revolution which is now in its beginning stages. We are living through a time of enormous change. It is a change from which we could eventually draw tremendous benefits. The degree of speed with which we gain those benefits depends on the intelligence and courage with which we face and solve the problems involved now.

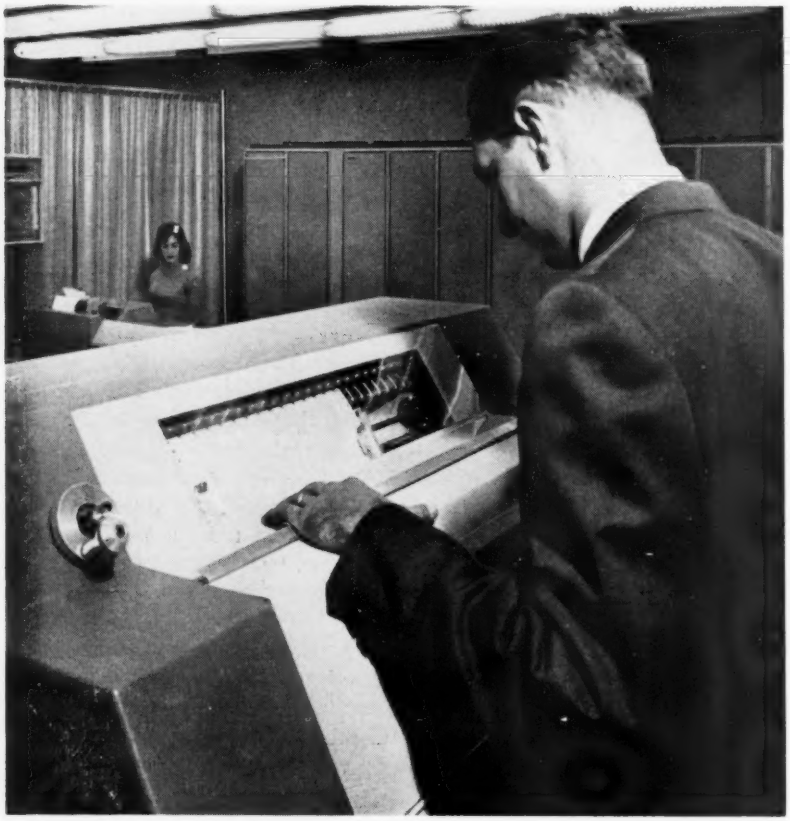
O
NEKOOSA MANIFOLD
. . . a strong, crisp, bond paper . . . light as a feather. For multiple carbon copies, air mail stationery, envelope enclosures. White and six colors.
S
NEKOOSA OFFSET
. . . for your small offset equipment. Goes through presses fast and smooth... without curl or wrinkle. In white and eight colors —in a variety of finishes.
A
NEKOOSA MASTER-LUCENT
. . . for use as the original in Ozalid and Bruning diazo machines.
NEKOOSA FAX
. . . for use in the Eastman Verifax® Copier.
Nekoosa
Bond

Nekoosa Papers...in new end-opening protective carton... are available through your Nekoosa Paper Merchant or stationery supplier.

Nekoosa PAPERS

MILLS AT PORT EDWARDS AND NEKOOSA, WISCONSIN, AND POTSDAM, NEW YORK

(Circle No. 37 on Reader Inquiry Card)



WHAT ROLE WILL AUTOMATION PLAY IN YOUR COMPANY'S FUTURE?

OFFICE MANAGEMENT, which pioneered the first reports on Automation in the Office back in 1952, has long since extended its coverage to interpret in depth the role automation is playing in the office, the trends that it has brought about, its implications for every aspect of the office's activities. For definitive reports on what automation means — today and in the future—look to OFFICE MANAGEMENT and AMERICAN BUSINESS, the magazine that puts automation in the correct perspective for alert executives. In addition to its articles in depth on every implication of automation, the magazine reports each month the most important installations and latest developments in the field of equipment.

Here are some typical features on automation in recent issues.

Middle and top management levels will be affected by automation.....September

Computer service centers promise electronic data processing for all American business October

Through use of computer service center, retail chain gains better sales figures faster November

Four input methods are available for using computer service centers.....December

Office Management and AMERICAN BUSINESS

The Magazine of Administration and Systems

A GEYER-McALLISTER PUBLICATION

212 Fifth Avenue, New York 10, N. Y.

BUSINESS PAPER LEADERSHIP ABP

AUDITED PAID CIRCULATION ABC

New personnel needs

(*From page* 21)

3. They have a good chance in early years to win a position where they can make the broad decisions toward which a vast majority of their business school courses have been directed.

Management development programs in many companies are also experimenting with new training methods. The theory is that the formalized training of the past in set response to given situations, in "cases," in role playing, all suffer from severe limitations in a situation where no one can anticipate clearly what problems business will be facing ten years hence. While workers are being sent to school to learn how to program machines, executive trainees are being given situation training – games simulating shifting operational situations in a mythical business. Various management groups are given an opportunity to actually run a mythical company in competition with another group of trainees heading another company. The effect of the operating decisions of each group within the hypothetical business situation is calculated by an electronic computer.

Must link three groups

More sophisticated still are the T-group sessions run by the National Training Laboratories, which are designed to improve communications and human relations skills among various executive levels. Here, a group of men and women are brought together for a two-hour session in which the participants, rather than the trainer, must evaluate themselves and each other—the same technique used in group therapy. To a degree the T-group whole is greater than the sum of the parts. The method puts people under a wholly unexpected and, at first, quite bewildering pressure. For the first time in their lives, the persons making up the group are thrown into a situation – with absolute strangers – where they know they're expected to do something. But no one is told what it is. There are no procedures to follow. There is no agenda. No discussion

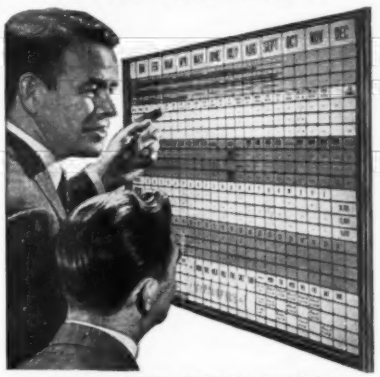
subject is suggested. There is a brief introductory statement by the trainer explaining what the technique is supposed to accomplish. That is that. The trainer leaves it up to the group from that point on.

In effect, a complete vacuum is created. Into that vacuum — slowly at first and then faster and faster — pour a flood of statements, ideas, actions, that vividly delineate the different personalities making up the group. The very manner in which each man introduces himself, if that is the device finally chosen to break the silence, is indicative. One may give his name, his title and his company, another merely his name. Each has already given the rest of the group a clue to the way he thinks, and the way he behaves. Power struggles develop as the group searches for a topic. Personality clashes occur. Sub-groups form. The dominant personality of the first meeting finds a rival by the third or fourth, or, if no rival develops, a determined opposition banding together against him. And finally, out of this microcosm, some cohesive shape begins to appear, the discussions take on form and direction, an "organization" develops. And, meanwhile, each member has had a chance to see his behavior through the eyes and the candid comments of the rest of the group. For many top corporate executives, insulated for years against any hint of criticism by their positions, it may be the first unbiased personal evaluations they've ever received.

These are some of the techniques, the terminology, the trends in the personnel function, which grows more complex in direct ratio to the increasing intricacy of the business world. It is quite clear that as more and more companies convert to machines for routine office and production functions and, at the same time, accelerate the competitive search for new and better products, the problems outlined in this article will become more severe and more demanding. Old rules and principles, evolved in an era when the company hierarchy was fairly well-defined, will have to be re-examined. For although it is perfectly true that we may be heading into a society where the divisions between groups in American business may become more rigid than they are now — managers, technicians scientists, and machine tenders is the standard forecast — it is also true that the authority and the role of each of the groups will be less well-defined than they were in the traditional organization of the past. It will be the role of the personnel specialist to link the three groups in the most efficient and effective way. He will have to deal with the scientists and research people — the traditional "ivory towered" types of business mythology — with a full understanding that they are apt to be far more hard-boiled and uncompromising in their work than the average businessman. He will have to deal with the machine tenders in an entirely different fashion and yet determine which of these are promising enough to be trained to move into the lower echelons of the technical and scientific group. And finally he will have to present his new personnel principles to management, and win acceptance and understanding of them.

It won't be an easy job for the person responsible for personnel administration. But at least it should be a stimulating one.

How To Get Things Done Better And Faster



BOARDMASTER VISUAL CONTROL

- ☆ Gives Graphic Picture—Saves Time, Saves Money, Prevents Errors
- ☆ Simple to operate—Type or Write on Cards, Snap in Grooves
- ☆ Ideal for Production, Traffic, Inventory Scheduling, Sales, Etc.
- ☆ Made of Metal. Compact and Attractive. Over 500,000 in Use

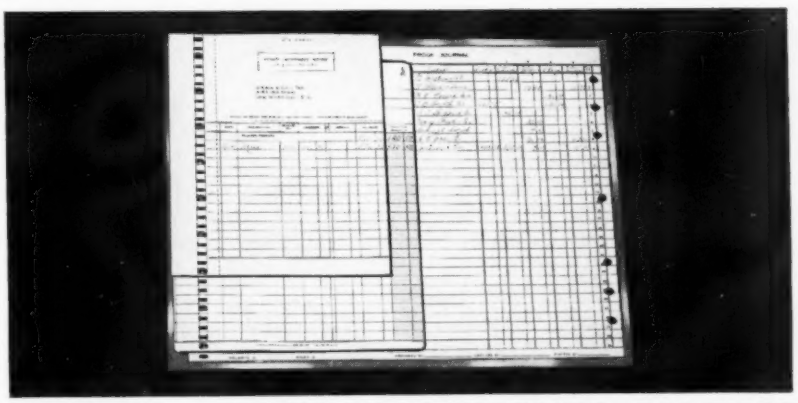
Full price **$49.50** with cards

FREE 24-PAGE BOOKLET NO. G-300 Without Obligation

Write for Your Copy Today

GRAPHIC SYSTEMS
YANCEYVILLE, NORTH CAROLINA

(Circle No. 23 on Reader Inquiry Card)



NOW... MAIL STATEMENTS ON TIME with no last-minute rush

Getting bills out promptly is never a strain with the *new Multi-Rite® Accounts Receivable Package System.*

Complete forms and accessories for 100 accounts are included in one, easy-to-use package—all for just $72.75.

With only *one writing*, statements are kept up to date every day—ready to mail any time. And you avoid transcription errors, save hours of posting time, speed up collections.

Perfect companion to the Multi-Rite Payroll Package. Send coupon today for full details.

YAWMAN & ERBE, C. E. Sheppard Co. Div.
44-13 21st Street • Long Island City 1, N. Y.

Send details on new Accounts Receivable Package System.

Name .....
Address .....
City ..... State .....

(Circle No. 49 on Reader Inquiry Card)

Errors are annoying

GRAYPOINT ERASER NO. 3650
Weldon Roberts Graypoint Eraser 3650 WHISK MADE IN U.S.A.
GRAYPOINT ERASER NO. 365
Weldon Roberts Graypoint Eraser No. 365 MADE IN U.S.A.

—but CORRECTING IS AMAZING !

There's nothing like a Graypoint to soothe a secretary's temper, to smooth away annoying errors, to save typing time.

Typists appreciate wood-cased Graypoint Erasers, made like a pencil, comfortable and convenient to hold like a pencil. Sharpen in a pencil sharpener or with a knife, like a pencil—to a point that picks-out typing errors cleanest, fastest. Graypoints won't roll off typists desks.

Graypoint luxury gray rubber erases letters and words so easily that girls get a thrill out of these superb erasers just as soon as they use them. Quite likely, *you'll* never notice the erasures. Multiply the time each girl saves by the number of typists in your office and you'll see substantial reduction of overhead. Give your girls Weldon Roberts Graypoints.

Order from your stationer

WELDON ROBERTS RUBBER CO.
365 Sixth Avenue, Newark 7, N. J.
World's Foremost Eraser Specialists

Weldon Roberts Erasers
Correct Mistakes in Any Language

(Circle No. 44 on Reader Inquiry Card)

Systems design for small office

(*From page* 36)

pieces. Once in file, of course, the card could also be used for addressing of mass mailings going out on a periodic basis to all prospects and customers.

Thus, the first problem was solved. What about the addressing operation from main files?

Over-mechanization

Here again, we found that a change of equipment could erase the difficulty. The company had been using a Scriptomatic 101, an addressing machine which has the ability to screen out cards selectively for a given list purpose. In a company which had three divisions, as this one did, one piece of general overall promotion might be designed just for the customers for natural foods. With all cards in a single master file, it was necessary to review 680,000 cards in order to make a mailing to only 23,000 people.

The Scriptomatic 101 offered the selective features the Scriptomatic 301 did not. But the 301 could create address labels from cards at a much faster rate that the 101. It was therefore advised that the four companies' prospects be separated into three lists, and that a 301 be added to the concern's equipment rather than the second 101 it had planned to buy.

Now mass mailings and customer orders could both be processed on the high-speed 301, with the 101 reserved for use in situations where its selective abilities were needed. This could occur because of some duplications between the three lists. Many vitamin purchasers were also prospects for natural foods, while natural foods purchasers usually avoid vitamins. Therefore, a mailing of a promotion on natural foods might be made to the entire vitamin list on the 301, with a simultaneous selective run-through of all cards on the natural food list by the 101. The latter could screen out the cards for customers also listed as vitamin purchasers. Thus, the company received the benefit of high-speed addressing for the major part of its list, and selective addressing of the relatively small portion where it was required.

In another area of the list operation, it was decided that the company had over-mechanized its procedures. Or at least it had not made the best possible use of the equipment it had. Infiling of the Scriptomatic cards to the main file was being handled by a Remington Rand collator. However, the number of additions each day was so small in comparison with the size of the total list that this method was actually not as efficient as hand filing. It was therefore recommended there be a return to manual methods for basic filing of cards into the list. The collator was reserved merely to pull out and separate duplicate cards where they occurred and to flag cards when an error in filing was detected. Correction of the errors and checking of duplicates could then be handled by the file clerk responsible for the files where the discrepancies showed up.

Capital costs were $25,000

Under this revised system, the collator acts as a check on overall file accuracy, as a cross between different files, and, ultimately, as a backstop piece of equipment to be used for infiling if and when any individual clerk falls behind in her work. To simplify the manual filing, we also recommended the use of a simple Rem-Rand interpreter.

These were the major mechanical changes recommended and acted on; the purchase of a Scriptomatic 301 to be used in conjunction with the 101 (an additional 101 would have had to be added to equipment within a few months under the old system); the acquisition of an Addressograph 831 heat transfer printer, six Standard Register pin feed patterns to enable the existing typewriters to handle the heat transfer paper created as a by-product of the creation of the Scriptomatic card, and one Rem-Rand interpreter. We also recommended the addition of new tub file units to ease the insertion and removal of the Scriptomatic cards from the files.

Total capital costs for this new equipment came to less than $25,000, and for rental of the Rem-Rand

(*To page* 134)

CATALOGS

BOOKLETS, BROCHURES

American Geloso Electronics, Inc., 251 Park Ave. South, New York 10. A 16-page booklet is entitled "The Facts About Dictating Machines." **1**

American Type Founders, 200 Elmora Ave., Elizabeth, N. J. Brochure describes the ATF Program-Matic control for offset duplicating. **2**

Ampex Magnetic Tape Products, PO Box 190, Opelika, Ala. Brochure gives specifications for recording systems for the office. **3**

Anelex Corp., 150 Causeway St., Boston 14, Mass. A brochure describes new 24 and 72-column printers for high speed EDP applications. **4**

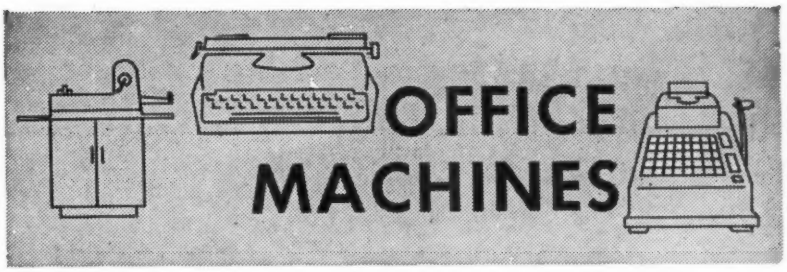
A. P. Heinz Co., 2422 Lunt Ave., Chicago 45. "Manual Collating" describes an improved hand gathering method. **5**

-Automation Management, Inc., PO Box 217, Westboro, Mass. An instrument that records automatically the efficiency of machine and operator is described. **6**

W. A. Brown Mfg. Co., 608 S. Dearborn St., Chicago 5. Brochure depicts The Escort horizontal camera for use with offset presses. **7**

Charles Bruning Co., Inc., 1800 Central Rd., Mt. Prospect, Ill. Brochure depicts the Model 120 Copyflex machine. **8**

Comptometer Corp., 5600 Jarvis Ave., Chicago 48. Brochure depicts the company's magnetic belt dictating machine. **9**



Control Data Corp., 501 Park Ave., Minneapolis 15. An illustrated brochure depicts the company's 1604 computer. **10**

Copease Corp., 425 Park Ave., New York 22. An illustrated catalog, "New Copilith Presses" depicts offset duplicators to presses. **11**

Copymation, Inc., 5650 N. Western Ave., Chicago 45. "The Copymate Line" displays a line of office photo copies and supplies. **12**

Cormac Photocopy Corp., 80 Fifth Ave., New York 11. Brochure depicts the "500" photocopier; also the "Select-O-Master Office Systems Guide." **13**

Cummins-Chicago Corp., 4740 Ravenswood Ave., Chicago 40. "For the Records" shows multi-purpose perforators used in the office. **14**

Curtis-Young Corp., 110 W. 18th St., New York 11. Brochure depicts the Tru-Fax copier. **15**

DeJur-Amsco Corp., 45-01 Northern Blvd., Long Island City, N. Y. "How to Measure Time . . . With Tape" discusses methods of getting the most out of dictating machines. **16**

Detecto Scales, Inc., 540 Park Ave., Brooklyn 5, N. Y. Illustrated brochure on Post-O-Meter Automatic Computer. **17**

A. B. Dick Co., 5700 Touhy Ave., Chicago 48. A brochure depicts the new "print-like copy mimeograph." **18**

Digitronics Corp., Albertson, N. Y. Booklet: "Digitronics converter solved our problem—will pay for itself in two years." **19**

Duplicator Co., 6314 W. Patterson Ave., Chicago 34. "The Modern Way to Finer Duplicating" describes the Ever-Flo method. **20**

Eastman Kodak Co., Business Methods Sales Div., Rochester 4, N. Y. "How Modern Office Copying Adds Time Where It Counts," depicts Verifax Copier applications. **21**

Edison Voicewriter Div. McGraw-Edison Co., West Orange, N. J. An illustrated brochure presents the new Envoy magnetic tape dictating machine. **22**

Electronic Systems Engineering Co., 2838 Wilshire Blvd., Oklahoma City, Oklahoma. Brochure depicts the Limpander SS-10 P. A. Amplifier. **23**

Elliott Addressing Machine Co., 143 Albany St., Cambridge, Mass. Illustrated brochure offers solutions to addressing and repetitive imprinting operations. **24**

Epsco, Inc., 275 Massachusetts Ave., Cambridge, Mass. An eight-page booklet discusses how work capacities are increased through application of packaged logic circuits. **25**

Executone, Inc., 415 Lexington Ave., New York 17. The booklet "Management File on Communications" describes modern uses of communication networks. **26**

Facit, Inc., 404 Park Ave. South, New York 16. Literature discusses Facit electric and manual typewriters. **27**

Fairchild Camera & Instrument Corp., Industrial Products Div., 580 Midland Ave., Yonkers, N. Y. Brochure explains uses of industrial photography. **28**

Farrington Business Machine Corp., 77 A St., Needham Heights 94, Mass. Information describing methods of paper gathering and booklet production. **29**

Friden Inc., 1 Leighton Ave., Rochester 2, N. Y. A booklet outlines the features of the Friden Code Converter for data processing systems. **30**

General Binding Corp., 1101 Skokie Highway, Northbrook, Ill. An illustrated booklet shows the use of company's plastic binding machine in paperwork operations. **31**

General Time Corp., Stromberg Div., Thomaston, Conn. Booklet describes transactor system of data collection. **32**

Gevaert Company of America, Inc., 321 W. 54th St., New York 19. A 12-page brochure describes the company's graphic art materials. **33**

General Binding Corp., 1101 Skokie Hwy., Northbrook, Ill. An illustrated booklet describes the Combo Punch and Binder, a plastic binder and punch. **34**

Haloid Xerox Inc., PO Box 1540, Rochester, N. Y. Literature describes Xerox copying equipment. **35**

M. E. Harris, Dept. 1824, Haloid Xerox Inc., Rochester 3, N. Y. Brochure describes the Xerox Copyflo 1824 printer. **36**

The Hamilton Autographic Register Co., Hamilton, Ohio. A catalog of the company's products, electric and manual, is available. **37**

Douglas Homs Co., 1314 Rollins Rd., Burlingame, Cal. Paper cutters are depicted in a colorful brochure. **38**

Honeywell Electronic Data Processing Division, Wellesley Hills 1, Mass. A 16-page brochure describes the Honeywell 800 EDP system. **39**

Interchemical Corp., Copy Products Div., 417 E. 7th St., Cincinnati 1, Ohio. Brochure describes paper for use with Thermo-fax machines. **40**

Kenro Graphics, Inc., Cedar Knolls, N. J. Literature discusses the Kenro "Vertical 18" camera and accessories. **41**

Lamson Corp., Lamson St., Syracuse 1, N. Y. A 50-page catalog shows a complete line of pneumatic tube equipment. **42**

Microfilm Corp. of New York City, 13 E. 37th St., N. Y. A brochure describes the Documat Reader-Printer that makes enlarged prints from microfilm. **43**

Microtape Systems, 44 Laura St., New Haven 8, Conn. Literature describes Micro-image filing system. **44**

Mid West Noise Control, 5420 College Ave., Indianapolis 20. Four-page brochure describes sound control equipment. **45**

Miles Reproducer Co., Inc. A brochure describes the Walkie-Recordall, voice-actuated conference recorder. **46**

Milo Harding Co., 197 Tempo Bldg., Monterey Park, Calif. A brochure depicts the Tempo Model 250 DA Geha stencil duplicator. **47**

Minnesota Mining & Mfg. Co., Duplicating Products Div., 900 Bush Ave., St. Paul 6, Minn. Booklet describes the Thermo-Fax brand copying machine. **48**

Monroe Calculating Machine Co., Inc., Orange, N. J. Brochure No. GA-505 describes Synchro-Monroe punch tape adding machine in data processing. **49**

The National Cash Register Co., Main & K Sts., Dayton 9. A booklet entitled "Versatile Machines by National for All Degrees of Automation," depicts EDP equipment. **50**

New England Paper Punch Co., 89 Washington Ave., Natick, Mass. A brochure describes Clix paper punches. **51**

NuArc Co., Inc., 4110 W. Grand Ave., Chicago 51. An "All-Product Booklet" shows a variety of reproduction equipment. **52**

Ozalid, Johnson City, N. Y. Information explains the Ozafax semi-dry diazo process. **53**

Peerless Photo Products Inc., Rt. 25A, Shoreham, N. Y. Brochure describes copying equipment for oversized material. **54**

Plastic Binding Corp., 732 Sherman St., Chicago 5. The Plastico hand-operated punching and binding unit is described in a colorful brochure. **55**

Radio Corp. of America, Front & Cooper St., Camden 2, N. J. Bulletin 3J3900 reports on the new RCA 301 "compact" EDP system. **56**

Recordak Corp., 415 Madison Ave., New York 17. An illustrated brochure depicts the Recordak Reliant 500 Microfilmer. **57**

Regna Cash Registers Inc., 175 Fifth Ave., New York 10. Catalog describes the line of Regna adding machines. **58**

Adding and Calculating Machines, Remington Rand Division of Sperry Rand Corp., 315 Park Ave. South, New York 10. Folder describes benefits of the 99 Printing Calculator. **59**

Rex Rotary Distributing Corp., 387 Park Ave. South, New York 16. Detailed literature discusses duplicating equipment. **60**

Scriptomatic, Inc., 11th & Vine St., Philadelphia 7. "Why Scriptomatic," contains bulletins of company's addressing machines and data writers. **61**

The Shredmaster Corp., 384 Woodcleft Ave., Freeport, N. Y. Folder gives free-trial details of Shredmaster Bantam 10. **62**

Smith-Corona Div. of Smith-Carona Marchant Inc., "Guide to Increasing Office Efficiency," depicts the Electra 12. **63**

Sound Control Products Co., PO Box 555, Rockford, Ill. Literature discusses acoustical enclosures for office and factory machines. **64**

Statmaster Corp., 3552 E. 10th Court, Hialeah, Fla. FilmoStat camera-darkroom is the subject of an 8-page brochure. **65**

Stenocord of America, Inc., 29 Broadway, New York 6. "How To Be A Dictator" gives hints for using dictating machines. **66**

Systematics Div. General Transistor Corp., 3216 W. El Segundo Blvd., Hawthorne, Calif. Brochure on EDP intercoupling and communication systems. **67**

Talk-A-Phone Co., 5013 N. Kedzie Ave., Chicago 25. Brochure describes the company's intercom equipment for offices. **68**

Teletype Corp., 5555 Touhy Ave., Skokie, Ill. Literature on the Teletype Model 28. **69**

Uarco Business Forms Inc., 300 W. Congress Parkway, Chicago 7. Booklet depicts the All-Purpose Deleaver and the #617-2A Burster. **70**

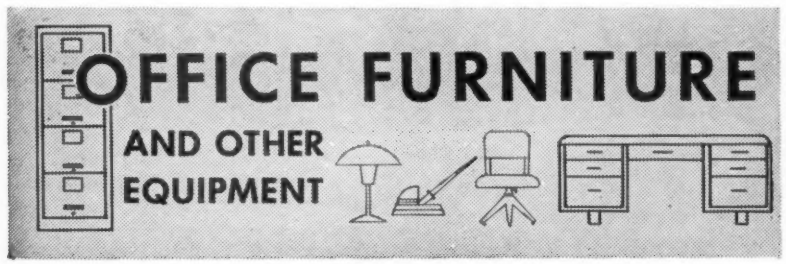
Underwood Corp., One Park Ave., New York 16. Illustrated brochure depicts the Underwood-Olivetti Divisumma 24 desk calculator. **71**

Universal Controls, American Totalisator Div., 745 Fifth Ave., N. Y. 22. Brochure depicts Uni-Tote, point-of-sale data control system. **72**

Varifab, Inc., Mohonk Rd., High Falls, N. Y. A brochure describes the Vari-Punch, portable keypunch machine. **73**

Varityper Corp., 720 Frelinghuysen Ave., Newark 12. Booklet gives information on the instant changeable type of the Varityper machine. **74**

Victor Adding Machine Co., Chicago 18. A four-color brochure describes the new Victor Automatic Printing Calculator. **75**



Acoustical Products Div., Baldwin-Ehret-Hill Inc., 500 Breunig Ave., Trenton, N. J. Booklet shows Styltone acoustical ceiling tile. **76**

All-Steel Equipment Inc., Aurora, Ill. Catalog describes the new 4000 line of modular office furniture. **77**

Ambi-dex Sales Co., 821 Woodlawn Dr., DeKalb, Ill. "Marker or Monitor" is a brochure on color control for file folders. **78**

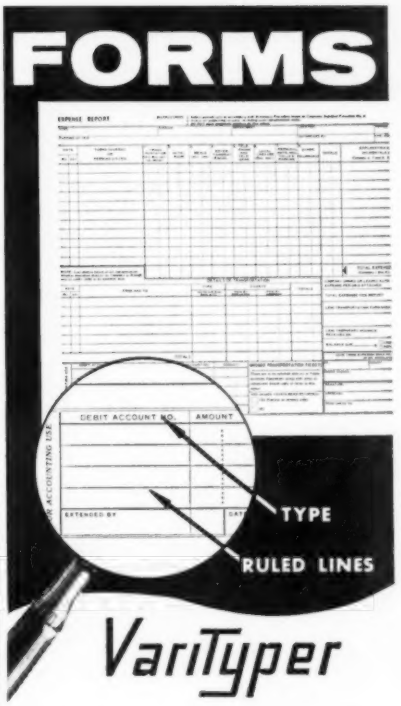
Azrock Products Div. Uvalde Rock Asphalt Co., Box 531, San Antonio, Texas. A catalog depicts a complete line of resilient floor tile. **79**

Bentson Mfg. Co., 652 N. Highland Ave., Aurora, Ill. An eight-page brochure displays steel office furniture. **80**

Borroughs Mfg. Co., 3002 N. Burdick St., Kalamazoo, Mich. Catalog illustrates, describes company's complete line of metal office furniture. **81**

Clopay Corp., Clopay Square, Cincinnati 14. Illustrated catalog depicts folding doors. **82**

Colson Corp., 7 S. Dearborn St., Chicago. Catalog C101 contains 2000 caster descriptions and specifications. **83**



Rules lines and Composes Type ...all in ONE operation...!

The most complete form can be ruled and type-composed in ONE operation and on ONE machine. Your office typist works from your rough draft and produces a highly professional form, complete with any style of type and any style of ruled line. Skilled hand ruling cannot match the fineness or precision of a VARITYPER machine ruled line.

Your VARITYPER machine will also supply you with professional type composition for all your literature, manuals, reports, etc. This advertisement is an example.

VARITYPER CORPORATION
SUBSIDIARY OF
ADDRESSOGRAPH-MULTIGRAPH CORPORATION

VARITYPER CORPORATION Dept. D-7
720 Frelinghuysen Avenue, Newark 12, N.J.
Please send me VARITYPER Book **D-7**

NAME.....
COMPANY.....
ADDRESS.....
CITY..... ZONE... STATE.....

(Circle No. 55 on Reader Inquiry Card)

Congoleum-Nairn Inc., 195 Belgrove Dr., Kearny, N. J. "Facts & Data On Resilient Floors" gives specifications of smooth floorings. **84**

Copease Corp., 425 Park Ave., New York 22. Literature shows the Champion photocopier. **85**

Day-Brite Lighting, Inc., St. Louis, Mo. A 16-page booklet gives tips on modern re-lighting of offices. **86**

Dolin Metal Products, Inc., 315 Lexington Ave., Brooklyn 16, N. Y. An illustrated 8-page catalog displays the Dolin Mobile Storage System. **87**

Evans Specialty Co., Inc., PO Box 8128, Richmond 23, Va. Desk top covers, chair mats are displayed in plastic accessories catalog. **88**

General Electric Co., Large Lamp Dept., Nela Park, Cleveland 12. Information given on the company's Group Relamping Plan. **89**

The Globe-Wernicke Co., Cincinnati 12, Ohio. Booklet G-12 displays the complete line of office accessories. **90**

Hough Mfg. Corp., Janesville, Wisc. Literature describes vinyl folding partitions. **91**

Interstate Metal Products Co., Inc., 666 Lake Shore Drive, Chicago 11. Brochure describes Maso bookcases. **92**

The Leopold Co., Burlington, Iowa. A 24-page brochure displays 58 units of the new Template Group of wooden office furniture. **93**

Luxo Lamp Corp., Dock St., Port Chester, N. Y. An illustrated catalog describes a full line of lamps for business and industry. **94**

B. L. Marble Furniture Inc., Bedford, Ohio. Superbly illustrated brochure depicts the Executive Series 2000 office furniture by B. L. Marble. **95**

McDonald Products Corp., 230 Duk-It Bldg., Buffalo 10, N.Y. Illustrated literature shows new rectangular wall urn. **96**

The Mills Co., 965 Wayside Rd., Cleveland 10. Colorful brochure shows the Mainliner line of movable partitions. **97**

Momar Industries, 4176 W. Montrose Ave., Chicago 41. Brochure vertical blue print files. **98**

Moore Business Forms, Inc., 900 Buffalo Ave., Niagara Falls, N. Y. "Total Systems Control Through Automation," a procedure story. **99**

Norfield Methods & Procedures, Inc., 909 S. Oak Park Ave., Oak Park, Ill. Information on the Norfield Posting Tray and Posting Box. **100**

Office Products Inc., 26029 Eight Mile Rd., Detroit 40. Catalog includes a complete line of filing index supplies. **101**

Penn Metal Co., Inc., PO Box 1460, Parkersburg, W. Va. Catalog: "Pen-metal Movable Steel Partitions." **102**

Polychrome Corp., 2 Ashburton Ave., Yonkers 2, N. Y. "A Reference Guide to Offset Blankets," explores ink transfer. **103**

Pronto File Corp., 415 Madison Ave., New York 17. Catalog shows storage cabinets. **104**

Remington Rand Systems, Division Sperry Rand Corp., 122 E. 42nd St., N. Y. 17. The new "Kardex Equipment Catalog" shows the company's complete line of filing equipment. **105**

Rudd-Melikian, Inc., 300 Jacksonville Rd., Hatboro, Pa. "Coffee In The Office" describes a new method for dispensing coffee. **106**

The Shaw-Walker Co., Muskegon, Mich. A 248-page catalog describes office furnishing and equipment; prices included. **107**

Smead Mfg. Co., Hastings, Minn. "File and Find It," a manual on filing methods and supplies. **108**

Smokador Mfg. Co., Inc., 71 Locust Ave., Bloomfield, N. J. A 64-page catalog displays a full line of the company's smoking accessories. **109**

Standard Pressed Steel Co., Jenkintown, Pa. Columbia Office Furniture lines are depicted in an eight-page catalog. **110**

Julien J. Studley, Inc., 342 Madison Ave., New York 17. "New Office Buildings of New York City," is a round-up of building specifications for prospective tenants. **111**

FREE TELKEE booklet answers that question for you; shows how TELKEE saves you time and money, gives you new convenience.

STOPS time wasted locating lost or borrowed keys

MINIMIZES expensive lock replacement and repairs

ORGANIZES all your keys in one orderly system

What's more, TELKEE guarantees maximum security and privacy—keeps keys in authorized hands, always.

Offices, factories, stores, schools, housing, hospitals . . . there's a TELKEE System to fit every size and type of application. TELKEE solves every key problem, efficiently, inexpensively.

FREE—send today!

TEL KEE

The MOORE KEY CONTROL® System

P. O. Moore, Inc., Glen Riddle 20, Pa.
Send FREE TELKEE booklet
NAME_____
FIRM_____
ADDRESS_____
CITY_____ ZONE___ STATE_____

(Circle No. 34 on Reader Inquiry Card)

Tab Products Co., 995 Market St., San Francisco. "New Tabtray Filing System" is an 8-page brochure describing vertical card handling equipment. **112**

United States Plywood, 55 W. 44th St., N. Y. A 28-page booklet describes interiors featuring Weldwood real wood paneling. **113**

Virco Mfg. Corp., PO Box 44846 Station H, Los Angeles. Catalog shows complete line of folding chairs. **114**

Vogel-Peterson Co., PO Box 90, Elmhurst, Ill. A brochure, "The Office Valet," shows a line of steel wardrobe equipment. **115**

Wassell Organization, Inc., Westport, Conn. "Work Organizers for the Sixties," a 32-page booklet of filing equipment. **116**

Yawman & Erbe, 1003 Jay St., Rochester 3, N. Y. A booklet discusses the Y&E direct name filing system. **117**

Accountants Publishing Co., 417 S. 7th St., Minneapolis, Minn. A brochure depicts Accountants columnar forms and supplies. **118**

Accountants' Supply House, 518 Rockaway Ave., Valley Stream, N. Y. A catalog shows accounting and bookkeeping supplies. **119**

Accounting Supplies & Systems, Inc., 450 W. Broad St., Falls Church, Va. Supplies and forms for use with typewriter and bookkeeping machines. **120**

Acme Visible Records, Inc., Crozet, Va. A colorful booklet depicts the company's visual control panels. **121**

Adams Rite Mfg. Co., 540 W. Chevy Chase Drive, Glendale 4, Cal. Booklet discusses maximum security for office buildings with new locks. **122**

Bankers Box Co., 2607 N. 25th Ave., Franklin Park, Ill. Catalog shows nine products designed for storing inactive records. **123**

Beaverite Products, Inc., 100 DeWitt St., Beaver Falls, N. Y. Folder CF shows a complete line of Modern Binders. **124**

Calor Copy Corp., 387 Park Ave. South, New York 16. Samples of Calocop paper for use with Thermo-Fax. **125**

Carteret Business Forms Inc., 480 Canal St., New York 13. Brochure describes company operations and products manufactured. **126**

Cel-U-Dex Corp., New Windsor, Newburg, N. Y. A booklet entitled "Modern Filing and Indexing Aids" describes the company's various filing methods. **127**

Chart-Pak, Inc., Leeds, Mass. A 28-page catalog describes drafting short-cuts using pressure-sensitive tapes. **128**

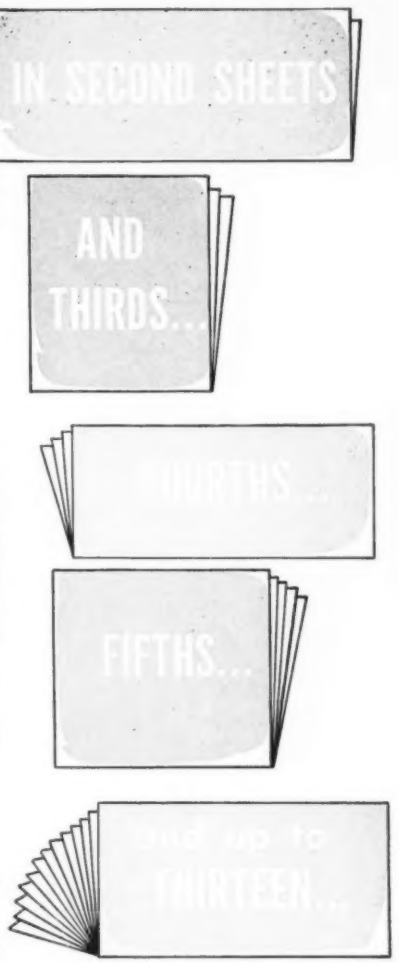
Chesley Industries, Inc., 24777 Telegraph Rd., Detroit 41. Brochure describes mail distribution cart for use in office. **129**

Clarkson Press Inc., 189 Van Rensselaer St., Buffalo 10, N. Y. Folder explains checks company makes including these used in MICR programs. **130**

Columbia Ribbon & Carbon Mfg. Co., Inc., Glen Cove, N. Y. The Columbia catalog describes carbon, ribbon hectograph, and offset duplicating supplies. **131**

Crown Zellerbach, 485 Lexington Ave., New York. Information is given on Numatic Towel Washroom dispensers. **132**

Delbridge Calculating Systems, Inc., 2502-10 Sutton Ave., St. Louis 17. Literature depicts financial, payroll and commodity calculators. **133**



SEA FOAM BOND

means QUALITY

- **QUALITY of print**
- **QUALITY of erasure**
- **QUALITY of strength**

Compare Sea Foam Bond with your present lightweight.

Send for samples today!

write Dept. OM-161

BROWNVILLE PAPER CO.
BROWNVILLE, NEW YORK

(Circle No. 12 on Reader Inquiry Card)

Diplomat Envelope Corp., 23-23 Borden Ave., Long Island City, N. Y. Illustrated brochure contains prices of a variety of envelopes. **134**

The Dunleavy Co., 87 Rumford Ave., Waltham, Mass. Guides for IBM and other punched card accounting. **135**

Dupli-Typer Corp., 460 Park Ave. South, New York 16. A bulletin describes multiple inked ribbon attachments for typewriters. **136**

Electronic Accounting Card Corp., High Point, N. C. Literature describes tabulating cards. **137**

Eureka Specialty Printing Co., Box 149, Scranton 1, Pa. Literature describes Mail Aid Labels for automation. **138**

Ever Ready Label Corp., 354 Cortlandt St., Belleville 9, N. J. Detailed information is given in the Ever Ready Label Idea Kit. **139**

Foldaligned Forms Co., 419 Broome St., N. Y. 13. Company's payroll record method is described. **140**

Flash Mfg. Co., 169 Murray St., Newark, N. J. A new catalog describes envelope moistener and tape sealers. **141**

Gardner Stamp Co., 166 S. Washington St., Wilkes-Barre, Pa. Brochure describes a heart-shaped eraser for soft surface typing papers. **142**

(Circle No. 16 on Reader Inquiry Card)

General Floorcraft, Inc., Rombouts Ave., Bronx 66, N. Y. Catalog gives prices of floor machines and vacuum cleaners. **143**

Graphic X Systems, Box 267 Yanceyville, N. C. A 24-page illustrated brochure depicts Boardmaster Graphic Visual Control Systems. **144**

Goes Lithographing Co., 42 W. 61st St., Chicago 21, "Lithographed Bordered Blanks" shows designs ready for copy overprint. **145**

Milo Harding Co., 186 Tempo Bldg., Monterey Park, Calif. Brochure for Tempo Jetdry Paste Ink. **146**

J. I. Holcomb Mfg. Co., Inc., 1601 Barth Ave., Indianapolis, Ind. Brochure discusses the benefits of Holcomb Anti-Skid Wax. **147**

The H-O-N Co., Muscatine, Iowa. Brochure explains the Shannovue Strip Record system. **148**

Interstate Metal Products Co., Inc., 666 Lake Shore Dr., Chicago 11. Brochure shows the Maso executive chair mat. **149**

Kimberly-Clark Corp., Neenah, Wisc. Available: "Business Paper Selector Chart" to help select duplicating papers. **150**

W. R. Kline Co., 1062 Stuyvesant Ave., Irvington 11, N. J. Self-locking aluminum binding posts for papers are depicted. **151**

Maggie Magnetic Visual Aids Corp., 11 W. 42nd St., New York 36. Catalog explains flexible control systems. **152**

McDonnell Aircraft Corp., P.O. Box 516, St. Louis, Mo. Brochure describes services of company's automation center. **153**

The Mead Corp., 118 W. First St., Dayton 2, Ohio. Duplicator paper sample book shows range of weights and colors. **154**

G. V. Meller Business Systems, 9 Bellwood Dr., New Hyde Park, N. Y. Newly designed stock business forms are illustrated. **155**

P. O. Moore, Inc., Glen Riddle 77, Pa. Booklet describes the Telkee system of key organization. **156**

National Litho Forms Co., 18423 Euclid Ave., Cleveland 12. The "Readytabs" brochure describes continuous carbon-interleaved forms. **157**

Olin Mathieson, Packaging Div., Ecusta Paper Products, Pisgah Forest, N. C. Waylite lightweight papers offers a "Mailing Weight Comparison Chart." **158**

The Paige Co., 95 Madison Ave., New York 16. Brochure depicts the "Miracle Box" records storage carton. **159**

Paterson Parchment Paper Co., Bristol, Pa. Samples of Patapar translucent parchment may be obtained by requesting on company letterhead. **160**

Remington Rand Systems, 122 E. 42nd St., New York 17. Brochure describes company's microfilm equipment. **161**

Reynolds & Reynolds Co., Dayton 1, Ohio. Continuous forms are depicted in "10 Ways To Make Your Business Forms Pay Dividends." **162**

Simonize Co., Commercial Products Div., 2100 Indiana Ave., Chicago 16. Details are given on the Simonize Super Anti-Slip Floor Finish. **163**

Stampaton Mfg. Corp., 694 Main St., Waterbury, N. Y. Brochure describes mail sealing. **164**

Stationers Loose Leaf Co., 246 E. Chicago St., Milwaukee, Wisc. "What Could Be Easier?" describes a nylon post binder **165**

Systemation Seminars, Div. of Ross-Martin Co., Box 800, Tulsa 1, Okla. Portfolio 200-1A, a prospectus on training course in systems. **166**

Tops Business Forms, 107 N. Wacker Dr., Chicago 6. A reference catalog of office forms and collection systems. **167**

Virginia Panel Corp., P.O. Box 1106 Waynesboro, Va. Details are given on aluminum frame control panels. **168**

Visirecord, Inc., 375 Park Ave., New York 22. Case histories illustrate the company's filing systems. **169**

Yawman & Erbe, C. E. Sheppard Co., Div., 44-13 21st St., Long Island City 1, N. Y. Catalog "L" describes the Cesco Line of marginal punched form binders. **170**

MISCELLANEOUS

Adams Associates, Inc., 142 The Great Road, Bedford, Mass. "Computer Characteristics Chart," lists salient features of 43 U. S.-built machines. **171**

NEW Weekly Book

Lists ENTERTAINMENT Detail

ALL tax-required details go in handily, to provide full, SAFE records. Complete and convenient BEACH'S will serve you best.

Also, Monthly Books and Weekly Sheets

Sales Leader in U.S. At Stationers, or Write:

BEACH PUBLISHING CO.

19829 W. McNichols Rd., Detroit 19, Mich.

(Circle No. 10 on Reader Inquiry Card)

Avoid confusion of scraps of paper . . . lost opportunities . . . forgotten duties and appointments. Use the MEMOGENDA. Permits constant survey of work ahead . . . results in working without strain. Checks out completed tasks and builds valuable history of activity. Users say they gain more time for living by making the best use of their working hours.

MEMOGENDA is a 96-page book, wire bound in a flexible leather-like covering. The right hand pages (8½ x 11) have numbered lines, one for each item. Opposite pages are for additional memos . . . includes instructions for use, an annual reminder, 3-year calendar, and active telephone list.

Price $30 a dozen F.O.B. factory, or send $3 for sample, postpaid. Full refund if it isn't the best investment you ever made.

KANO LABORATORIES

(Circle No. 27 on Reader Inquiry Card)

Lathem Time Recorder Co., 88 Third St., N.W., Atlanta, Ga. Brochure gives information on the 8800 Time Recorder. **172**

Minneapolis-Honeywell Regulator Co., Industrial Div., Philadelphia. "Do You Talk 'Computerese?' " is a glossary of terms most commonly used in computer instrumentation and technology. **173**

Motorola, Inc., 4501 W. Augusta Blvd., Chicago 51. Brochure ATIC–968 depicts the Handie-Talkie Radio Pager. **174**

National Safety Council, Chicago 11. "Accidents in the Office," is part of a campaign to improve industrial safety. **175**

Remington Rand Univac Division of Sperry Rand Corp., 315 Park Ave. S., New York. Brochure depicts "The Optical Scanning Punch." **176**

Scriptomatic, Inc., 1101 Vine St., Philadelphia 7. Case histories show company's addressing system. **177**

Traveletter Corp., Greenwich 3, Conn. Brochure depicts method of travel reimbursement. **178**

Victor Adding Machine Co., 3900 N. Rockwell St., Chicago 18. "Application 501" is a job cost analysis using a Victor Data Punch operation. **179**

Weber Marking Systems, Weber Industrial Park, Mount Prospect, Ill. Mailing and marking systems are depicted in the company's illustrated catalog. **180**

NEXT MONTH

OFFICE MANAGEMENT AND AMERICAN BUSINESS will establish as a regular feature a column of helpful aids for cutting office costs.

At last

FOR THOSE WHO MAKE AN OCCASIONAL MISTAKE

GENERAL'S *NEW* Color-Tex

COMPLETELY ERASABLE

COLORED PENCILS

Nobody's perfect—that's why they put erasers on pencils. Now–for the first time, a thin-lead, non-smudge, fade-proof colored pencil that erases cleanly, easily, completely!

LIKE THIS

NOT LIKE THIS

THE ONLY COLORED PENCIL OF ITS KIND

No more messy, shredded papers! No more valuable working time lost fighting to erase colored pencil marks! With amazing, new ERASABLE Color-Tex — you can erase color as easily as you erase black lead pencil marks. Only the color comes off! No ghosts — no shredded paper!

TRY COLOR-TEX ERASABLE 10 DAYS FREE

See for yourself how General's special "Carbo-Weld" process makes Color-Tex stronger and stay sharp longer! See how much faster your accountants, bookkeepers, secretaries work — once they're free from hard-to-erase, smudgy, colored pencils!

Available in Carmine Red or Indigo Blue — ask your dealer for General's New ERASABLE Color-Tex Pencils — or write today on your letterhead for FREE SAMPLES.

Medium or Hard Grades with or without erasers

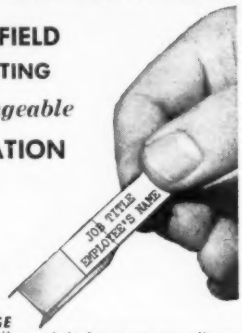
GENERAL PENCIL COMPANY

69 FLEET STREET, JERSEY CITY 6, N. J.

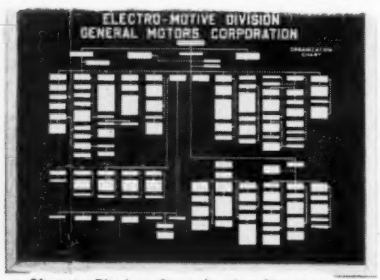
(Circle No. 22 on Reader Inquiry Card)

STOP COSTLY RE-DRAFTING OF ORGANIZATION CHARTS

The COFFIELD EVERLASTING *Interchangeable* ORGANIZATION CHART



EASY TO CHANGE
A typist, a typewriter and typing paper are all you need to keep your chart up to date. It's that simple!

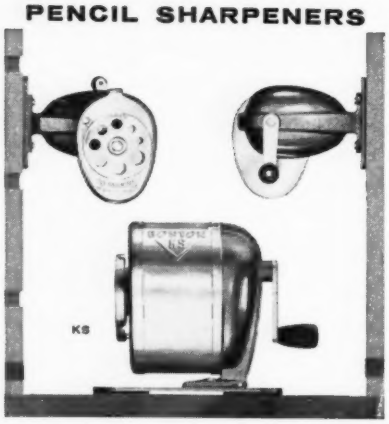


- Sizes to Fit Any Organization Structure
- Eliminates All Costly Drafting
- Photographs for Sharp Prints
- Invaluable as a Visual Training Aid
- All Parts Are Movable and Re-usable
- Solves Your Chart Problem Forever

Write for Free 16-Page Illustrated Brochure with Price Schedule No. OM-1

MANAGEMENT CONTROL CHARTS CO.
1731 N. WELLS ST. CHICAGO 14, ILL.
(Circle No. 30 on Reader Inquiry Card)

BOSTON®
PENCIL SHARPENERS



easy mounting on any surface

Now Boston's all-metal pencil sharpeners can be mounted anywhere. There is a Boston for every purpose and *the mounting kit fits every model.* All sharpeners are guaranteed for 1 year.

C. HOWARD HUNT PEN CO., CAMDEN 1, N.J.
(Circle No. 25 on Reader Inquiry Card)

Systems design

(*From page* 126)

interpreter, another $1,100 was budgeted. Since two pieces of rented equipment were eliminated under the systems revision, the annual conversion costs, estimated on an eight-year depreciation schedule, of $4,281 were offset to some degree by an annual savings of $2,490 in rental fees.

In the non-mechanical area, it was found that the fulfillment operation was highly seasonal in nature, with both orders and inquiries rising very steeply in the winter months when there is a heavy incidence of illness, and falling sharply in the summer. General Nutrition therefore agreed that the permanent full-time staff for the department be geared to low volume requirements, with development of a complete permanent part-time work force to be used during the winter months. Here, by use of staggered hours and days, it was possible to build up a reliable work force among housewives and mothers of school-age children. The company also inaugurated cross-training of all permanent personnel to allow fluctuations in work volume in particular areas of the department to be handled smoothly and efficiently by reassigning jobs.

Fulfillment is at all times a fast-moving operation, subject to quick changes in volume and unexpected requirements. A thorough knowledge of staff and equipment capabilities, the status of work in process, and daily personnel performance is therefore a necessity of efficient management.

NEXT MONTH

The February issue of OFFICE MANAGEMENT AND AMERICAN BUSINESS will resume the series, "Data processing for small business," with the fourth installment. The article will deal with the use of inexpensive electromechanical equipment to automate invoicing and billing at a small manufacturing firm. The series was suspended this month due to the "Trends and Forecast" issue.

CLASSIFIED ADVERTISING

Rates: Minimum 20 words $7.00. Each additional word 35c. Payable in advance. Address replies to all Box Number ads c/o OFFICE MANAGEMENT and AMERICAN BUSINESS, 212 5th Ave., New York 10, N. Y.

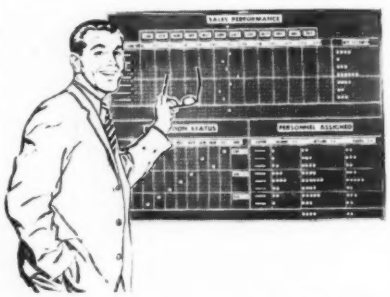
For Sale or to Buy

IBM SORTER #080-470 CARDS per minute. New motor, perfect condition. $500.00. FOB our plant. Sterling Supply Corp., 5699 Rising Sun Avenue, Philadelphia 20, Pa.

WANTED: SPEEDAUMAT MACHINES, GRAPHOTYPES, NCR #3100 and #3200, All Burroughs Sensimatics and Billers, Pitney-Bowes, Brandts. Give model and serial for quotation. William Marion Co., Dept. QM., 173 Lafayette St., New York 13, N. Y.

Positions Wanted

PERSONNEL, EMPLOYEE RELATIONS. COLLEGE, Age 37. Experience: Counseling, Psychological Testing, Safety, In-Service Training, Pre-Paid Medical Programs. Western States. OM 358.



"Maggie" Magnetic Boards Keep You on Top of Every Operation

"Maggie" Magnetic Visual Controls offer the easiest and quickest way to chart sales, traffic, personnel or any other phase of your business. Colorful, magnetic indicators tell you at a glance if everything is in the right place at the right time. No cards, pegs or other nuisance devices to replace because "Maggie" Boards with magnetic indicators last indefinitely. Pays for itself many times over because the first cost is the last cost.

Priced from $49.50 complete.

Write for FREE catalogue on the most modern and flexible control system available today

maggie magnetic visual aids corp.
11 West 42nd Street • New York 36, N. Y.
(Circle No. 29 on Reader Inquiry Card)

Associations of interest to office administrators

American Bankers Association
12 E. 36th St., New York 16.

American Institute of Certified Public Accountants
270 Madison Ave., New York 16.

American Institute of Electrical Engineers
33 W. 39th St., New York 18.

American Institute of Management, Inc.
125 E. 38th St., New York 16.

American Management Association
1515 Broadway, New York 36.

American Personnel and Guidance Association
1605 New Hampshire Ave., N. W., Washington 9, D. C.

American Production and Inventory Society
330 S. Wells St., Chicago 6.

American Records Management Association
President: William Benedon, Lockheed Aircraft Corp., P. O. Box 551, Burbank, Calif.

American Society for Personnel Administration
44 Kellogg Center, East Lansing, Mich.

Association for Computing Machinery
14. E. 69th St., New York 21.

Association of Consulting Management Engineers, Inc.
347 Madison Ave., New York 17.

Association of Records Executives and Administrators
Chairman: John Porter, IBM Corp., 590 Madison Ave., New York 22.

Business Forms Institute
20 Church St., Greenwich, Conn.

Controllers Institute of America
2 Park Ave., New York 16.

Federal Government Accountants Association
1523 L Street, N. W., Washington, D. C.

Industrial Management Society
330 S. Wells St., Chicago 6.

Institute of Radio Engineers, Inc.
1 E. 79th St., New York 21.

Instrument Society of America
313 Sixth Ave., Pittsburgh 22.

Insurance Accounting and Statistical Association
Secretary-Treasurer: L. J. Hale, P.O. Box 139, Kansas City, Mo.

Life Office Management Association
110 E. 42nd St., New York 17.

National Association of Manufacturers
2. E. 48th St., New York 17.

National Association of Purchasing Agents
11 Park Place, New York 7.

National Association of Suggestion Systems
25 E. Jackson Blvd., Chicago 4.

National Business Forms Associates
P. O. Box 1199, Fort Lauderdale, Fla.

National Industrial Conference Board, Inc.
460 Park Ave., New York 22.

National Machine Accountants Association
1750 W. Central Rd., Mt. Prospect, Ill.

National Management Association
321 W. First St., Dayton 2, Ohio.

National Microfilm Association
P. O. Box 386, Annapolis, Md.

National Office Management Association
1927 Old York Rd., Willow Grove, Pa.

National Records Management Council, Inc.
555 Fifth Ave., New York 17.

National Secretaries Association (International)
222 W. 11th St., Kansas City 5, Mo.

Newspaper Personnel Relations Association
Executive Secretary: James H. Mills, Denver *Post*, Denver, Colo.

Office Equipment Manufacturers Institute
777 14th St., N. W., Washington, D. C.

Office Equipment Manufacturers Exhibits, Inc.
777 14th St., N. W., Washington, D. C.

Office Executives Association of New York, Inc.
386 Park Ave. South, New York 16.

Office Management Association of Chicago
105 W. Madison St., Chicago 2.

Records Management Association of Chicago
President: Mrs. Doris Hughes, Remington Rand Div. Sperry Rand Corp., 444 N. Michigan Ave., Chicago 5.

Records Management Association of New York
President: Miss Ann Frank, Anaconda Co., 25 Broadway, New York.

Safe Manufacturers National Association, Inc.
366 Madison Ave., New York 17.

Society for Advancement of Management, Inc.
74 Fifth Ave., New York 11.

Society of Reproduction Engineers
18465 James Couzens, Detroit 35.

Systems and Procedures Association of America
4463 Penobscot Bldg., Detroit 26.

The Institute of Management Sciences
P. O. Box 273, Pleasantville, N. Y.

Wood Office Furniture Institute
1414 Eye St., Washington 1, D. C.

Preview of events during 1961

Thirteenth National Credit Conference, Chicago, Jan. 23, 24.
Sponsor: American Bankers Association.
Place: LaSalle Hotel.

Chicago Business Show and Seminar. Chicago, Feb. 27-March 2.
Sponsor: Office Management Association of Chicago.
Place: Conrad Hilton Hotel.

Annual Meeting of Business Forms Institute. New York, Feb. 16, 17.
Sponsor: Business Forms Institute.
Place: Commodore Hotel.

CIA Southern Area Conference. Houston, March 2-4.
Sponsor: Controllers Institute of America.
Place: Shamrock Hilton.

American Personnel and Guidance Association Convention. Denver, March 27-30.
Sponsor: American Personnel and Guidance Association.
Place: Denver Hilton Hotel.

Tenth Annual Meeting and Convention, National Microfilm Association. Chicago, April 4-6.
Sponsor: National Microfilm Association.
Place: Hotel Sherman.

Sixteenth Annual Management Engineering Conference. New York, April 6, 7.
Sponsors: Society for Advancement of Management and Management Division of American Society of Mechanical Engineers.
Place: Statler Hilton.

CIA Eastern Area Conference. Washington, D. C., April 6-8.
Sponsor: Controllers Institute of America.
Place: Shoreham Hotel.

OEMI Business Equipment Exposition. New York, April 17-21.
Sponsor: Office Equipment Manufacturers Exhibits, Inc.
Place: New York Coliseum.

CIA Western Area Conference. Phoenix, April 20-22.
Sponsor: Controllers Institute of America.
Place: Arizona Biltmore.

Fourth Annual Conference on Records Management. New York, May 1, 2.
Sponsor: Association of Records Exexutives and Administrators.
Place: Hotel Roosevelt.

ASPA 13th Annual Conference. Minneapolis, May 2-4.
Sponsor: American Society for Personnel Administration.
Place: Hotel Radisson.

NOMA International Conference and Office Exposition. St. Louis, May 7-11.
Sponsor: National Office Management Association.
Place: Sheraton-Jefferson Hotel, Kiel Auditorium.

FGAA Tenth Annual Symposium. Washington, D. C., May 18-20.
Sponsor: Federal Government Accountants Association.
Place: Shoreham Hotel.

NAPA Convention and Inform-A-Show. Chicago, June 4-7.
Sponsor: National Association of Purchasing Agents.
Place: Conrad Hilton.

CIA Northeastern Area Conference. Lake Placid, N. Y., June 8-11.
Sponsor: Controllers Institute of America.
Place: Lake Placid Club.

NMAA National Conference. Toronto, June 28-30.
Sponsor: National Machine Accountants Association.
Place: Royal York Hotel.

CIA North Central Area Conference, Hot Springs, Va., June 29-July 1.
Sponsor: Controllers Institute of America.
Place: Homestead.

TIMS Eighth Annual International Meeting. Brussels, Belgium, Aug. 23-25.
Sponsors: The Institute of Management Sciences and International Statistical Institute and the Econometric Society.
Place: Palace of Congresses.

ACM Annual Meeting. Los Angeles, Sept. 6-8.
Sponsor: Association for Computing Machinery.
Place: Statler-Hilton Hotel.

NICB International Industrial Conference. San Francisco, Sept. 11-15.
Sponsors: National Industrial Conference Board, Inc., Stanford Research Institute.
Place: Fairmont Hotel.

Fourth Annual National Technical Conference and Exhibit. Chicago, Sept. 28, 29.
Sponsor: American Production and Inventory Control Society.
Place: Pick-Congress Hotel.

International Systems Meeting. Cleveland, Oct. 9-11.
Sponsor: Systems and Procedures Association of America.
Place: Statler and Carter Hotels.

Eighty-seventh Annual Convention of American Bankers Association. San Francisco, Oct. 15-18.
Sponsor: American Bankers Association.
Place: Civic Auditorium.

NBFA Conference. Miami Beach, Oct. 15-19.
Sponsor: National Business Forms Associates.
Place: Americana Hotel.

OEA National Business Show, New York, October 23-27.
Sponsor: Office Executives Association.
Place: New York Coliseum.

NASS 19th Annual Convention. Cincinnati, October 29-31.
Sponsor: National Association of Suggestion Systems.
Place: Netherlands Hilton Hotel.

Twenty-fifth Anniversary Industrial Engineering and Management Clinic. Chicago, Nov. 1-3.
Sponsor: Industrial Management Society.
Place: Pick-Congress Hotel.

CIA Annual International Conference. Chicago, Nov. 5-8.
Sponsor: Controllers Institute of America.
Place: Palmer House.

TIMS Second American Meeting. San Francisco, Nov. 8-10.
Sponsors: The Institute of Management Sciences and Operations Research Society of America.
Place: Jack Tarr Hotel.

Office Management and AMERICAN BUSINESS

Semi-annual index

July-December, 1960

AUTOMATION IN THE OFFICE

"Input" improvements major 1960 automation advance.
Robert M. Smith.....July, page 15
Automation raises manufacturing efficiency.
John Allan Rhea.....July, page 24
Sweeping personnel changes foreseen as result of new automation developments.
Robert M. Smith.....August, page 11; .....September, page 42
IBM, Friden unveil tape converters.....August, page 44
Management games — toys or trends?
Robert M. Smith....September, page 15
The foibles of electronic computers.
Mary D. Lyons.....September, page 48
Farrington introduces Productograph.....September, page 56
Computers come to small business.
John A. Brown.....October, page 13
Cutting clerical costs in the order processing department.
Richard D. Simmons...October, page 20
Burroughs automates oldest U.S. bank....October, page 34
Behind-the-scenes election drama: how computers will spot next president.
John Allan Rhea....November, page 22
Retail chain gains better sales figures faster —without raising costs.....November, page 38
Burroughs offers small, low-cost general-purpose computer...November, page 48
Four input methods are available for using computer service centers.
John A. Brown.....November, page 32
IBM announces 1410 computer; U.S. Post Office initiates automated mail handling techniques.....December, page 44

PERSONNEL

Personel needs reach new high.
Edith Conner.....July, page 32
Building management's second team.
Edmond Wright .....July, page 39
Measuring office productivity.
Irwin Lipton.....August, page 20
Trends in pensions, group insurance will raise employee benefit costs.....September, page 24
A training ground for secretaries.
John M. Sine.....October, page 29
Rate your supervisor.
Alfred K. Allan.....October, page 50
Don't go by the book in the appraisal interview.
Robert Hoppock....November, page 60
Self-discovery is core of new training technique.
Robert M. Smith....December, page 13
Perils of the office worker.
Alfred L. Dowden...December, page 38

LAYOUT AND EQUIPMENT

Suburb vs. city.
Charles F. Johnson....August, page 24
Office market will pass six billion figure in 1960.....August, page 58
Vending cuts office feeding costs. John Allan Rhea.....September, page 34
How we eliminated overflowing file cabinets.
Charles S. Pearson...November, page 44
Visible files speed airplane repairs.....December, page 50

NEWS OF ASSOCIATIONS

NOMA report.....July, page 65
Office health, personnel, equipment covered in final NOMA sessions...August, page 38
AMA conference will stress new importance of administration.October, page 26
Electronic computer display will highlight business show....October, page 46
Vice President—Administration, That's the target for tomorrow...November, page 15
Salute to commerce in the West.....November, page 56
AMA conference opens the door to top management opportunity.....December, page 22

SYSTEMS DESIGN AND METHODS

Let's take a simple approach to systems.
Robert Shiff and Alan Negus.....July, page 48; August, page 34
The Standard Practice Instruction.
Walter S. Athearn.....October, page 42
The case for systems analysis.
Raymond Dreyfack...November, page 32

OFFICE DESIGN

Reception area: hub of office.
Sidney G. Rodgers.....July, page 54
Air conditioning vitalizes office.
Mary D. Lyons.....July, page 59
Conference room has varied uses.
John Allan Rhea.....August, page 50
New methods reduce office noise.
John M. Sine.....August, page 55
Adapt the "work station" to the worker.
John M. Sine.....September, page 61
"Elegant simplicity" keynotes executive suite of the sixties.
John Allan Rhea.....October, page 55
Apply imagination to the office wall.
John M. Sine.....November, page 65
Executive office accessories.
John M. Sine.....December, page 69

TOOLS OF THE OFFICE

Intercommunications equipment.
Lyman Coddington.....July, page 76
Mailroom equipment, time recorders, and numbering machines.
Mary D. Lyons.....August, page 62
Filing equipment and its role in records retention.....September, page 80
Equipment for integrated data processing.
Mary D. Lyons.....October, page 70
Adding, calculating, bookeeping, and accounting machines.
Mary D. Lyons.....November, page 85
Books for executive reading.
Mary D. Lyons.....December, page 54

18TH ANNUAL OMAC

1961 MIDWEST SEMINAR and CHICAGO BUSINESS SHOW

FEB. 27TH THRU MAR. 2ND

CONRAD HILTON HOTEL CHICAGO

Mid-America's famous, established, official, experienced program for management personnel to keep pace . . .

- **Office Management**
- **Personnel**
- **Controller**
- **Office Services**
- **Industrial Relations**
- **Machine Accounting**
- **Purchasing**

A GIGANTIC DISPLAY OF ALL THE LATEST OFFICE EQUIPMENT AND ELECTRONIC MACHINES

The 18th Annual Midwest Seminar is co-sponsored by the Chicago Chapter of the National Office Management Association and Northwestern University.

Clip and mail to OMAC, Dept. OM-2-61
Office Management Assn. of Chicago
105 West Madison St., Chicago 2, Ill.

Please send me details of the Chicago Seminar and Business Show.

Name _____

Address _____

City _____ State _____

Company _____

(Circle No. 38 on Reader Inquiry Card)

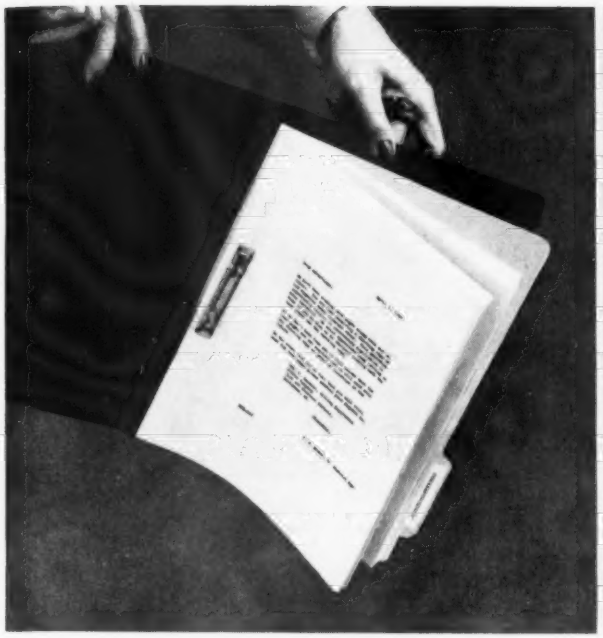
ADVERTISER'S INDEX

Circle KEY NUMBER on Reader Inquiry Card

Key		Page
	A	
1	**Acco Products Div. of Natser Corp.** ... *Agency—Geer, DuBois & Co., Inc.*	139
2	**Acme Visible Records, Inc.** ... *Agency—Cargill, Wilson & Acree, Inc.*	89
3	**American Building Maintenance Co. Div. of T & S Industries** ... *Agency—Richard N. Meltzer Adv., Inc.*	45
—	**American Telephone & Telegraph Co. Business Equipment Sales** ... *Agency—N. W. Ayer & Son, Inc.*	3
4	**American Type Founders, Inc.** *Agency—Douglas Turner, Inc.*	85
5	**Ampto, Inc.** ... *Agency—Industrial Marketing Services Co.*	79
7	**Arnot Furniture Div. of Royal Metal Mfg. Co.** ... *Agency—Chirurg & Cairns, Inc.*	38
	B	
8	**Bankers Box Co.** ... *Agency—Frank C. Jacobi Advertising Inc.*	90
9	**Barkley & Co., C. L.** ... *Agency—Frank C. Jacobi Advertising Inc.*	90
10	**Beach Publishing Co.** ... *Agency—Francis Advertising Agency*	133
—	**Bell Telephone System** ... *Agency—N. W. Ayer & Son, Inc.*	3
11	**Bergstrom Paper Co.** ... *Agency—Geer-Murray, Inc.*	51
12	**Brownville Paper Co.** ... *Agency—Conklin, Labs & Bebee, Inc.*	131
13	**Bruning Co., Inc., Charles** ... *Agency — Wade Advertising, Inc.*	83
	C	
14	**Charnstrom Co., W. A.** ... *Agency—Firestone Goodman Adv. Agency*	64
	D	
15	**Dartnell Corp., The** ...	113
16	**Dewberry Engraving Co.** ...	132
17	**Dolin Metal Products, Inc.** ... *Agency—Office Equipment Adv.*	88
	E	
18	**Eastern Fine Paper & Pulp Div. of Standard Packaging Corp.** ... *Agency—Smith, Hagel & Knudsen, Inc.*	6
19	**Eastman Kodak Co., Business Photo Methods Verifax Equipment & Supplies** ... *Agency—J. Walter Thompson Co.*	81
20	**Eaton Allen Corp.** ... *Agency—Reiter-Ross, Inc.*	54
	F	
57	**Forms, Inc.** ... *Agency—Ralph A. Hart Advertising*	101
21	**Friden, Inc.** ... *Agency—Richard N. Meltzer Advertising, Inc.*	61

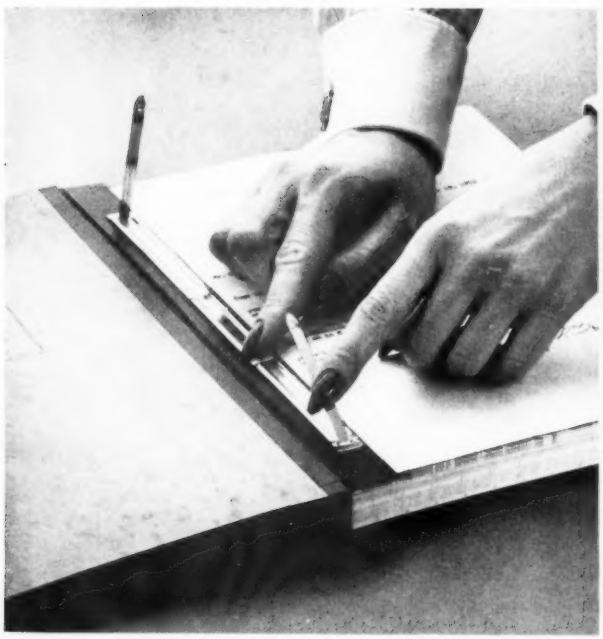
Key		Page
	G	
22	**General Pencil Co.** ... *Agency—Maxwell Sackheim-Franklin Bruck, Inc.*	133
23	**Graphic Systems** ... *Agency—Caswell Advertising Agency*	125
	H	
24	**Haloid Xerox Inc.** ...	4th Cover
25	**Hunt Pen Co., C. Howard** ... *Agency—Robert S. Kampmann, Jr., Adv.*	134
26	**Hygienic Dental Mfg. Co., The** *Agency—Brown Adv. Agency*	50
	K	
27	**Kano Laboratories** ... *Agency—Bachrodt, Newell, O'Kane & Gano, Inc.*	133
	L	
28	**Lassco Products, Inc.** ... *Agency—Wilkinson Adv.*	64
	M	
29	**Maggie Magnetic Visual Aids Corp.** ... *Agency—Dale Associates*	134
30	**Management Controls Charts Co.** ... *Agency—Stern, Walters & Simmons, Inc.*	134
31	**Michael Lith Sales Corp.** ...	64
32	**Monroe Calculating Machine Co., Inc., Div. of Litton Industries** ... *Agency—Ellington & Co., Inc.*	2nd Cover
33	**Moore Business Forms, Inc.** ... *Agency—N. W. Ayer & Son, Inc.*	16
34	**Moore Inc., P. O.** ... *Agency—The Gerald F. Selinger Co.*	130
	N	
35	**National Cash Register Co., The (Business Machines)** ... *Agency—McCann-Erickson, Inc.*	56
36	**National Cash Register Co., The (NCR Paper)** ... *Agency—McCann-Erickson, Inc.*	3rd Cover
37	**Nekoosa-Edwards Paper Co.** ... *Agency—The Cramer-Krasselt Co.*	120, 121, 122, 123
	O	
	Office Management and American Business ...	124
38	**Office Management Association of Chicago** ...	137
	P	
58	**Peerless Photo Products, Inc.** *Agency—John Mather Lupton Co., Inc.*	80
39	**Peerless Steel Equipment Co.** *Agency—Norman A. Strang Adv.*	55
40	**Pitney-Bowes, Inc.** ... *Agency—L. E. McGivena & Co., Inc.*	63
41	**Port Huron Sulphite & Paper Co.** ... *Agency—Chandler's Adv.*	32

Key		Page
	R	
42	**Recordak Corp., Sub. of Eastman Kodak Co.** ... *Agency—J. Walter Thompson Co.*	117
43	**Reynolds & Reynolds Co., The** *Agency—Weber, Geiger & Kalat, Inc.*	4
44	**Roberts Rubber Co., Weldon** *Agency—La Porte & Austin, Inc.*	126
7	**Royal Metal Mfg. Co.** ... *Agency—Chirurg & Cairns, Inc.*	38
45	**Royal McBee Corp., Data Processing Div.** ... *Agency—C. J. La Roche & Co., Inc.*	26
46	**Royal Typewriter Co. Div. of Royal McBee Corp., (Electric Typewriter)** ... *Agency—Young & Rubicam, Inc.*	111
47	**Royal Typewriter Co., Div. of Royal McBee Corp., (Roytype Supplies)** ... *Agency—Young & Rubicam, Inc.*	37
	S	
48	**Scriptomatic, Inc.** ... *Agency—Roland G. E. Ullman Organization Inc.*	67
—	**Shaw-Walker Co.** ... *Agency—J. Walter Thompson Co.*	40
49	**Sheppard Co., C. E., Div. of Yawman & Erbe Mfg. Co., Inc.** *Agency—The Rumrill Co., Inc.*	125
50	**Smead Mfg. Co., The** ...	91, 92
51	**Smith-Corona Div. of Smith-Corona Marchant, Inc.** ... *Agency—Cunningham & Walsh, Inc.*	109
52	**SoundScriber Corp., The** ... *Agency—Fuller & Smith & Ross, Inc.*	76,77
18	**Standard Packaging Corp., Eastern Fine Paper & Pulp Div.** *Agency—Smith, Hagel & Knudsen, Inc.*	6
	T	
53	**Teletype Corp.** ... *Agency—Marsteller, Rickard, Gebhardt & Reed Inc.*	69
54	**Thomas Collators, Inc.** ... *Agency—Douglas Turner, Inc.*	65
	U	
59	**Universal Shredder Co.** ... *Agency—Campbell-Williams-Stark Adv.*	119
	V	
55	**Varityper Corp.** ... *Agency—Bruce Angus Adv., Inc.*	125
56	**Visirecord, Inc.** ... *Agency—McClellan Adv., Inc.*	93
	Y	
49	**Yawman & Erbe, C. E. Sheppard Co. Div.** ... *Agency—The Rumrill Co., Inc.*	125



1. To save filing time: spillproof Acco folders

Accobind folders keep your papers secure, in sequence, easy to find. Eliminate frantic searching for loose "lost" papers. Fastened papers slide out for easy transfer. Firm pressboard covers stay new-looking, never sag, save file space. 5 colors. **ACCOBIND** GENUINE PRESSBOARD FOLDERS



2. To save storage space: adjustable Acco binders

Accopress binders don't bulk or bulge. They adjust to their contents, whether one sheet or one thousand. Space-saving, economical, spillproof —ideal for records, invoices, catalogs. Long-lasting pressboard. Available in 12 colors. **ACCOPRESS** GENUINE PRESSBOARD BINDERS

ACCO PRODUCTS A Division of Natser Corporation, Ogdensburg, N.Y. • In Canada: Acco Canadian Co., Ltd., Toronto

(Circle No. 1 on Reader Inquiry Card)

COMPANY ADMINISTRATOR NEXT?

IN THIS latest issue of our traditional January *Trends and Forecast* issue, a noticeable drawing together of the various fields of interest to the office is apparent in the subjects discussed in article after article. Personnel can only be considered in the light of the changes being wrought by automation and systems developments. The effects and progress of automation are conditioned by the personnel available to man the processing lines. Systems design is geared ever more closely to the other two "fields." To paraphrase, one could say that no phase of the office is any longer an "islande," complete more or less unto itself. The effects of every move, every decision, must be estimated from a number of viewpoints, rather than merely one or two.

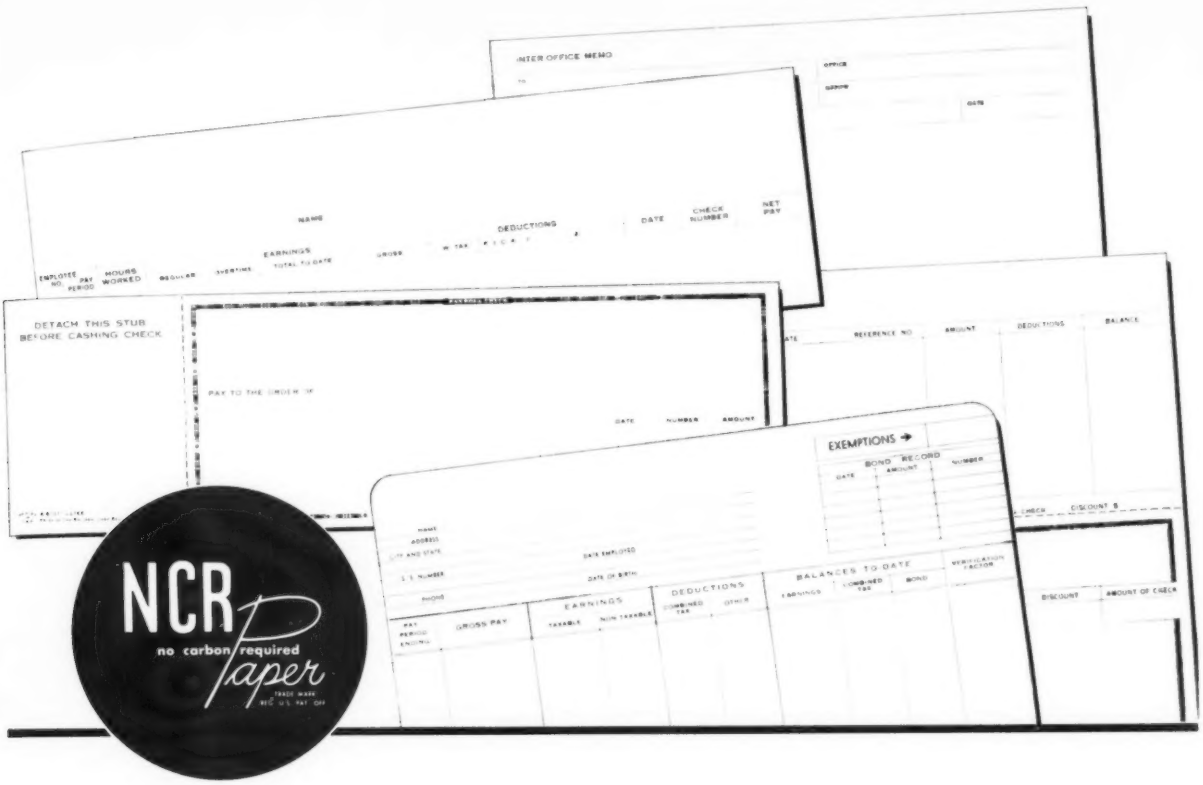
All this makes the office administrator's job more demanding and more exacting, but it broadens the scope of his work at the same time. It is significant that the new Administration's appointee as Secretary of Defense, Robert McNamara, former president of the Ford Motor Company, came to Ford a few years ago as a statistical analyst, not as a production genius, a financier, a marketing expert. Ford—one of the country's great manufacturing complexes, tying together a host of subsidiary industrial activities —its own railroads, steel mills, finishing plants. And its most recent president is a former statistical analyst.

The Ford instance provides dramatic evidence that this is the era of advance through the office and administrative functions. It is logically so, because the administrative functions are assuming the major role in the American economy. As a company becomes more tightly integrated, as the effects of every company move, no matter how seemingly insignificant, become more important to every other activity of the company, the role of the men and women who prepare and manipulate the information which is the company's life blood, and ensure that that information is used in a logical and pre-set pattern, also become more important.

It's a challenging role as well as a difficult one—particularly so because it will be resisted at first. Administrators not now in top positions will have to make many top management decisions before the company authority fully accepts the shift in its traditional hierarchy. There will be difficulties, both personal and professional. Authority is a habit that is hard to abandon, but it is inevitably moving away from some company functions and toward others.

Much of this authority will polarize around an entirely new position—not office administrator, but the company's administrator. As a new position, it will be open to different contenders. The current office administrator is equipped by training, familiarity with present methods, and his current function, to fill it, if he has the character, courage and decisiveness to gain it. He is the closest and most logical contender for this new, evolving position in terms of everything but tradition. And the emerging position itself reveals that old traditions are being overturned throughout business.

Those who remember that will be the first to benefit in the years of the sixties.



YOUR BUSINESS CAN NOW HAVE:

Multiple Copies *without* Carbons

of any kind!

WHAT IS NCR PAPER?

NCR Paper looks like ordinary paper on both sides. Yet it reproduces impressions for sharp multiple copies. A special process makes this possible—without messy carbon coatings underneath, or carbon paper between the forms.

WHY IT SAVES MONEY.

Although NCR Paper is sometimes priced slightly higher than forms with carbon, it is less expensive in the long run. Reason? NCR Paper saves you time. Repeated tests show the average clerical worker can do 30% more work per day if he uses NCR Paper forms. NCR Paper eliminates carbon paper collating and disposal.

NCR PAPER WON'T SMEAR!

Unlike carbon-backed forms and carbon paper, NCR Paper will not smudge or smear. What's more, NCR Paper will not soil hands or clothing.

CREATES COPIES WITH LITTLE EFFORT.

NCR Paper produces up to 5 copies when you use a ball point pen or pencil. 8 or more copies with your business machines or typewriters.

GIVES GREATER PROTECTION!

NCR Paper prevents alterations. It can not be erased without detection—making it one of the safest papers available for business forms.

TRY NCR PAPER YOURSELF!

Call your local printer or forms supplier. He'll be glad to give you free samples of this money-saving paper. Available and ideal for all types of multiple copy forms.

NCR PAPER ELIMINATES CARBON PAPER

***THE NATIONAL CASH REGISTER COMPANY,* Dayton 9, Ohio**

1039 OFFICES IN 121 COUNTRIES • 77 YEARS OF HELPING BUSINESS SAVE MONEY

(Circle No. 36 on Reader Inquiry Card)

...makes copies on ordinary paper!
...copies often look better than originals
The New Dimension in Office Copying
XEROX 914 COPIER

So superior is the quality of reproduction on a XeroX® 914 Office Copier that copies often *look* better than the original. And it copies anything—production orders, bulletins, reports, drawings, engineering data, news clippings, letters—onto ordinary unsensitized paper.

What do users say about the new XeroX 914 Office Copier? "Can't say enough nice things about it . . . Worth half a girl more" (food packer). "Vast improvement over anything else. Does 50% more work than five other machines" (fruit company). "Fabulous. Has replaced five copiers in our organization" (plastics manufacturer).

If you now spend $50 or more a month for copying supplies, a XeroX 914 Office Copier can reduce your copying costs and speed your paperwork production. For complete information, write Haloid Xerox Inc., 9X-240 Haloid St., Rochester 3, N. Y. Branch offices in principal U. S. and Canadian cities. Overseas: Rank-Xerox Ltd., London.

NEW XEROX® 914
OFFICE COPIER

(Circle No. 24 on Reader Inquiry Card)